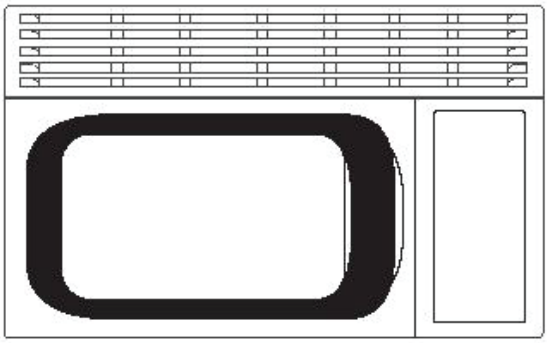
MICROWAVE OVEN

BASIC: MMV1163
MODEL: SMH9151B
MODEL CODE: SMH9151B/XAA

SERVICE Manual

MICROWAVE OVEN



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PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(a) Do not operate or allow the oven to be operated with the door open.

(b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
(1) Interlock operation,
(2) proper door closing,
(3) seal and sealing surfaces (arcing, wear, and other damage),
(4) damage to or loosening of hinges and latches,
(5) evidence of dropping or abuse.

(c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.

(d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.

(e) A Microwave leakage check to verify compliance with the Federal performance standard should be performed on each oven prior to release to the owner.

1. Precaution

Follow these special safety precautions. Although the microwave oven is completely safe during ordinary use, repair work can be extremely hazardous due to possible exposure to microwave radiation, as well as potentially lethal high voltages and currents.

1-1 Safety precautions (⚠)

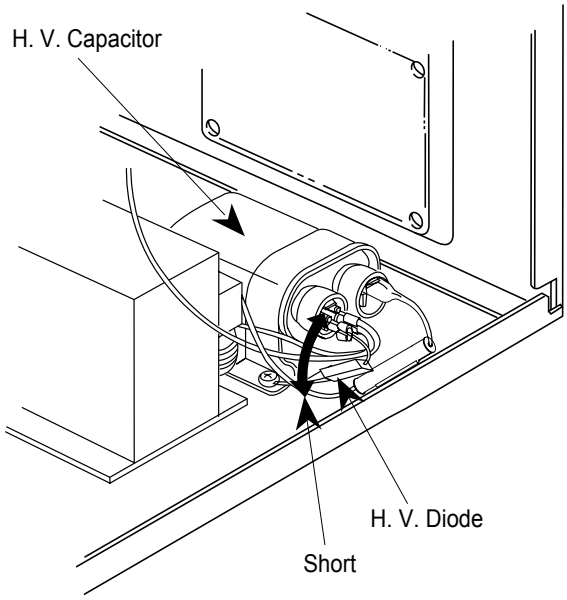
1. All repairs should be done in accordance with the procedures described in this manual. This product complies with Federal Performance Standard 21 CFR
2. Microwave emission check should be performed to prior to servicing if the oven is operative.
3. If the oven operates with the door open :Instruct the user not to operate the oven and contact the manufacturer and the center for devices and radiological health immediately.
4. Notify the Central Service Center if the microwave leakage exceeds 5 mW/cm2.
5. Check all grounds.
6. Do not power the MWO from a “2-prong” AC cord. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
7. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
8. Make sure that there are no cabinet openings through which people --particularly children--might insert objects and contact dangerous voltages. Examples: Lamp hole,ventilation slots.
9. Inform the manufacturer of any oven foundto have emission in excess of 5 mW/cm2 ,Make repairs to bring the unit into compliance at no cost to owner and try to determine cause. Instruct owner not to use oven until it has been brought into compliance.

   CENTRAL SERVICE CENTER
10. Service technicians should remove their watches while repairing an MWO.
11. To avoid any possible radiation hazard,replace parts in accordance with the wiring diagram. Also, use only the exact replacements for the following parts: Primary and secondary interlock switches, interlock monitor switch.
12. If the fuse is blown by the Interlock Monitor Switch: Replace all of the following at the same time: Primary, door sensing switch and power relay, as well as the Interlock Monitor Switch. The correct adjustment of these switches is described elsewhere in this manual. Make sure that the fuse has the correct rating for the particular model being repaired.
13. Design Alteration Warning: Use exact replacement parts only, i.e.,only those that are specified in thedrawings and parts lists of this manual. This is especially important for the Interlock switches, described above. Never alter or add to the mechanical or electrical design of the MWO. Any design changes or additions will void the manufacturer’s warranty. Always unplug the unit’s AC power cord from the AC power source before attempting to remove or reinstall any component or assembly.
14. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
15. Some semiconductor (“solid state”) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs). Examples include integrated circuits and field-effect transistors. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground.
16. Always connect a test instrument’s ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument’s ground lead last.
17. When checking the continuity of the witches or transformer, always make sure that the power is OFF, and one of the lead wires is disconnected.
18. Components that are critical for safety are indicated in the circuit diagram by shading, ⚠ or ⚠ .
19. Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

    NOTE : Connect the oven to a 20A. When connecting the oven to a 15A,make sure that circuit breaker can operate.

1-2 Special High Voltage Precautions

1. High Voltage Warning Do not attempt to measure any of the high voltages --this includes the filament voltage of the magnetron. High voltage is present during any cook cycle. Before touching any components or wiring, always unplug the oven and discharge the high voltage capacitor (See Figure 1-1)
2. The high-voltage capacitor remains charged about 30 seconds after disconnection. Short the negative terminal of the high-voltage capacitor to to the oven chassis. (Use a screwdriver.)
3. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.



PRECAUTION

There exists HIGH VOLTAGE ELECTRICITY with high current capabilities in the circuits of the HIGH VOLTAGE TRANSFORMER secondary and filament terminals. It is extremely dangerous to work on or near these circuits with the oven energized.

DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

PRECAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

PRECAUTION

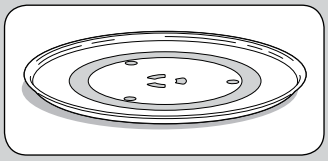
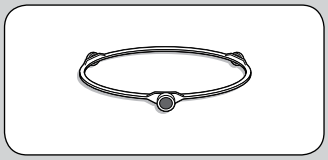
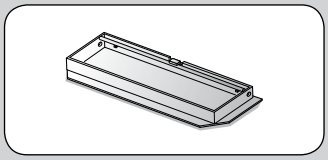
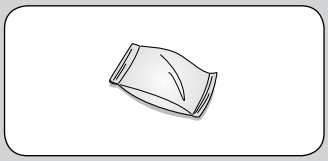
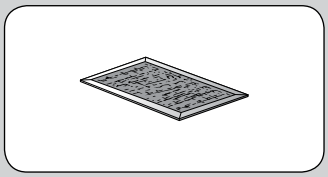
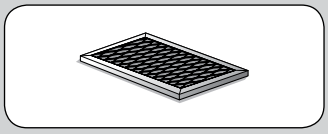
Never touch any circuit wiring with your hand nor with uninsulated tool during operation.

2. Specifications

2-1 Features

Product Features	
• Stirrer and Turntable	Continually rotates food to ensure even cooking.
• Instant Cook	Instant On Controls - Allow quick, one touch cooking and reheating.
• Venting System	Two speed, 300CFM venting system - Quickly removes smokr and steam from cook top

2-2 Accessory

Item	Description	Code No.	Q'ty
	TRAY-COOKING	DE63-00536A	1
	ASSY-GUIDE ROLLER	DE92-90495C	1
	ASSY-HOOD DAMPER	DE92-90242D	1
	ASSY-HARD WARE	DE92-90505G	1
	FILTER-AIR	DE63-00196A	1
	FILTER-CHARCOAL	DE63-00367E	1

2-3 Table of Specifications

Items	Basic Model	New Model
	MMV1163	SMH9151B
Cavity Size (cu.ft.)	1.6	1.6
Power		
Power Source	120 V / 60 Hz	120 V / 60 Hz
Output Power (Watts)	1000	1000
Power Consumption (Watts/Amp)	1580/13.5	1580/13.5
Characteristics		
Control Method	Touch	Touch
Display	LED	LED
Sensor	No	No
Cooking Timer	99 min. 99 sec.	99 min. 99 sec.
Power Level	10	10
Auto Defrost	Yes	Yes
Auto Reheat	Yes	Yes
One Touch Instant Cook Pads	Yes	Yes
Soften/Melt	Yes	Yes
More/Less	Yes	Yes
Cooking Stages	2	2
Add 30 sec	Yes	No
One Minute	No	Yes
Clock	Yes	Yes
Kitchen Timer	Yes	Yes
Weight Option	Oz	Oz
Reminder End Signal On/Off	No	No
Child Safety Lock	Yes	Yes
Clock System Option (12 hrs / 24 hrs)	12 hrs	12 hrs
Demonstration Mode	No	No
Numeric Pads	0-9	0-9
Turntable Distribution	Stirrer + Turntable	Stirrer + Turntable
Turntable On/Off	No	No
End Signal Sound	Yes	Yes
Vent Fan CFM	220	220
Vent Orientation	Horizontal	Vertical
Vent Fan Control	Hi/Lo/Off	Hi/Lo/Off
Cooktop Lighting	Hi/Lo/Off	Hi/Lo/Off
Cabinet Colour	STSS/Black/White	STSS/Black/White/Silver
Cavity Interior	Epoxy	Epoxy
Cabinet Dimensions W x H x D (inches)	29 7/8 x 16 1/2 x 15 1/16	29 7/8 x 16 1/2 x 15 1/16
Net Weight (lb)	STSS: 45.9 lbs / Plastic: 44.6 lbs	STSS: 45.9 lbs / Plastic: 44.5 lbs
Shipping Properties		
Shipping Dimensions W x H x D (inches)	33 3/8 x 19 15/16 x 19 13/32	33 3/8 x 19 15/16 x 19 13/32
Loading Q'ty (sets / 40ft)	330 (Jumbo)	330 (Jumbo)
Shipping Weight (lb)	STSS: 53.4 lbs / Plastic: 52.1 lbs	STSS: 53.4 lbs / Plastic: 52.0 lbs

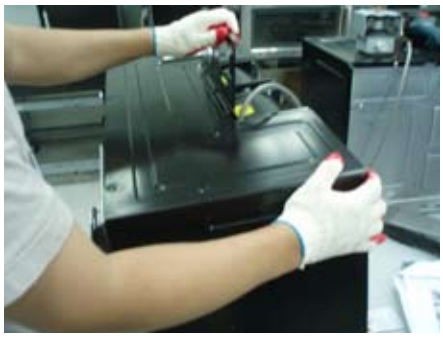
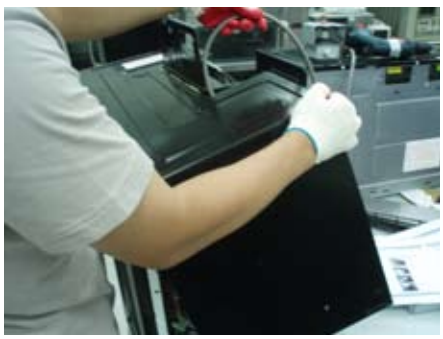
MAGNETRON, MOTOR ASSEMBLY, VENT BLOWER AND HIGH VOLTAGE TRANSFORMER

Oven must be removed from wall.

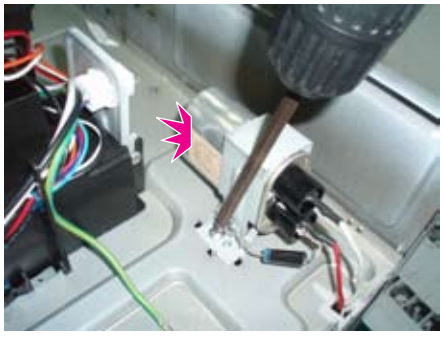
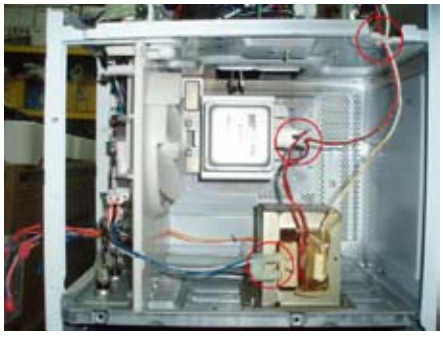
REMOVING OVEN FROM WALL (2 PEOPLE REQUIRED)

Oven is hooked on metal tabs at bottom of wall mounting plate and to cabinet by (3) top cabinet bolts.

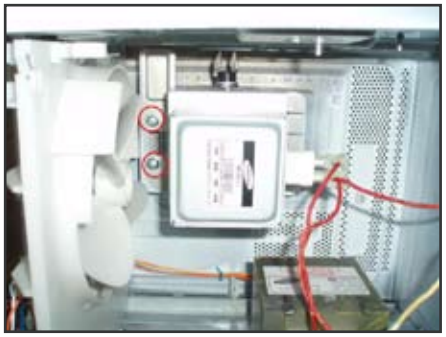
3-1 Replacement of High Voltage Transformer

Parts	Explaination Photo	Explaination
Grille		**1.** Disconnect oven power. **2.** Remove Grille. **1)** Remove 2 screws **2)** Slide the Grille to the left, then pull it straght out.
Panel Outer	 	**3.** Remove Panel Outer.

3-1 Replacement of High Voltage Transformer

Parts	Explanation Photo	Explanation
High voltage capacitor		**4.** Discharge the High voltage capacitor.
		**5.** Disconnect all the leads.
Base Bottom		**6.** Remove Base bottom.
HV Trans		**7.** Take out the HV Trans.

3-2 Replacement of Magnetron

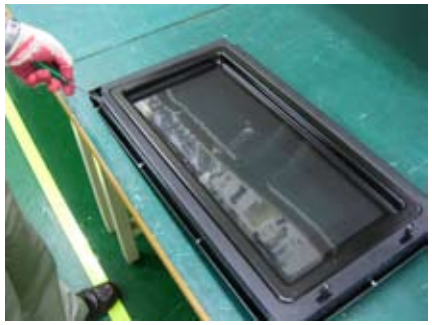
<table>
<tr><th>Parts</th><th>Explaination Photo</th><th>Explaination</th></tr>
<tr><td rowspan="2">Magnetron</td><td> </td><td>Remove the magnetron including the shield case, permanent magnet, choke coils and capacitors (all of which are contained in one assembly).
1. Disconnect all lead wires from the magnetron.</td></tr>
<tr><td>  </td><td>2. Remove nuts (4) securing the magnetron to the wave guide.
3. Take out the magnetron very carefully.</td></tr>
<tr><td colspan="3">NOTE1: When removing the magnetron, make sure that it antenna does not hit any adjacentparts, or it may be damaged.
NOTE2: When replacing the magnetron, be sure to remount the magnetron gasket in the correct position and make sure the gasket is in good condition.</td></tr>
</table>

⚠ PRECAUTION

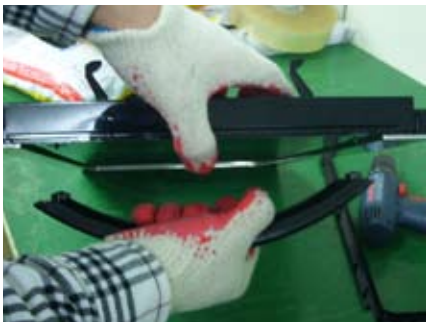
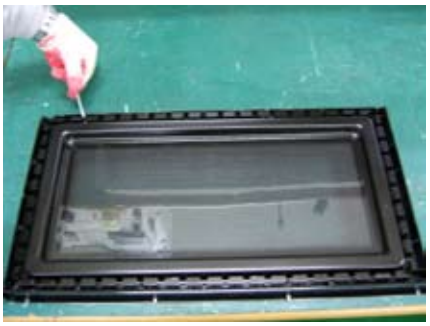
During replacement, be certain R.F. anode gasket is in place around anode stub.

PERFORM MICROWAVE LEAKAGE TEST

3-3 Replacement of Door Assembly

Parts	Disassembly Photo	Explanation
Removal of Door Assembly		**1.** Insert flat screwdriver into the gap between Door “A” and Door “C” to remove Door “C”. Be careful when handling Door “C” because it is fragile.Then remove the door assembly.
Removal of Door C	 	**2.** Insert flat screwdriver into the gap between Door “A” and Door “C” to remove Door “C”. • Becareful when handling Door “C” because it is fragile.
Removal of Key Door & Spring	 	**3.** Detach the spring and key door from Door.

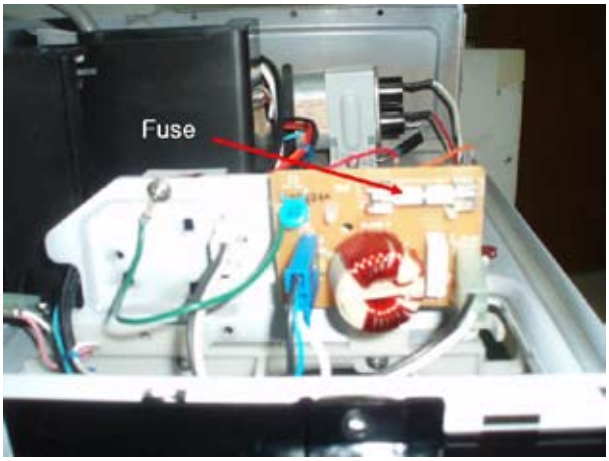
3-3 Replacement of Door Assembly

Removal of Handle	 	**4.** Remove 2 screws, then handle is detached from Door “A”.
Removal of Door “E”	 	**5.** Following the procedure as shown in the figure, insert and bend a thin metal plate between Door “E” and Door “A” until you hear the ‘tick’ sound. • Insertion depth of the thin metal plate should be 0.5mm or less.

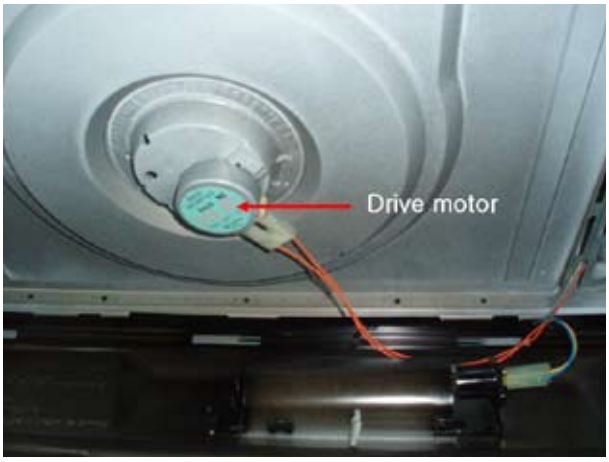
PRECAUTION

PERFORM MICROWAVE LEAKAGE TEST

3-4 Replacement of Fuse

Parts	Explaination Photo	Explaination
Fuse		The fuse is located on the noise filter. **1.** Disconnect power and remove grille. **2.** Replace the fuse. **3.** When 20A fuse blows out by the operation of interlock monitor switch failure, replace the primary interlock switch, secondary interlock switch, door sensing switch, interlock monitor switch and power relay. **4.** When the above four switches operate properly, check if any other part such as the control circuit board, blower motor or high voltage transformer is defective.

3-5 Replacement of Drive Motor

Parts	Explaination Photo	Explaination
Drive Motor		**1.** Disconnect power and remove bottom plate screws(5). **2.** Remove bottom plate and disconnect the turntable motor drive. **3.** Remove turntable motor screws(1) and pull the turntable motor out. **4.** When replacing the drive motor, be sure to remount it in the correct position with the coupler. **5.** Connect all the leads to the drive motor.

3-6 Removal of stirrer

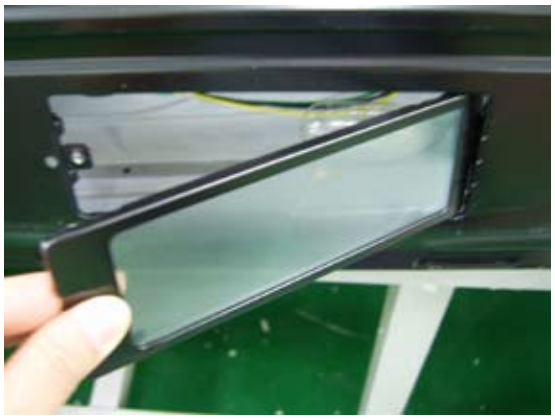
Parts	Explaination Photo	Explaination
Stirrer	 	The stirrer is motor driver and located on the upper side of the cavity. The oven uses a top feed wave guide. The stirrer is located in the wave guide and the motor is located on the wave guide. **1.** Disconnect power and open the door. **2.** Remove the clip and turn the stirrer cover left. **3.** Remove stirrer cover and the stirrer will come with it.

3-7 Replacement of Control Circuit Board

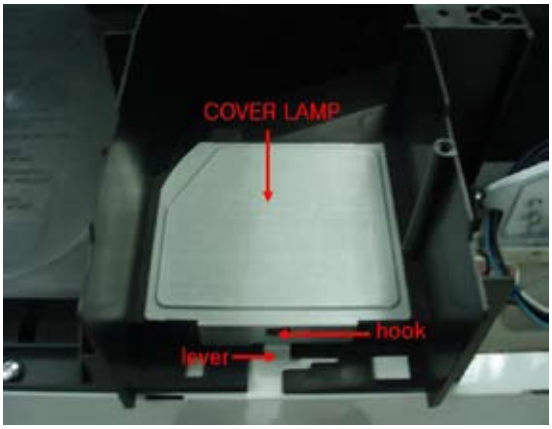
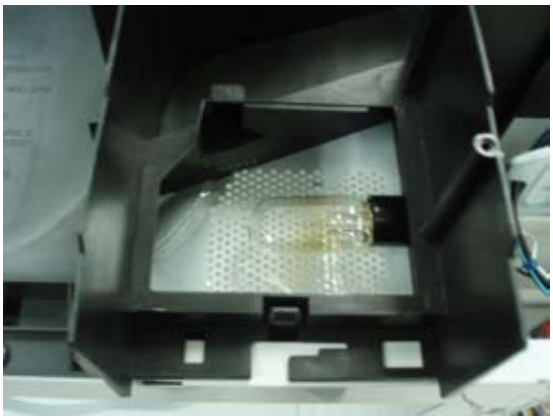
Parts	Explaination Photo	Explaination
Removal of Control Box Assembly		**1.** Disconnect power and remove grille. **2.** Be sure to ground any static electric charge in your body and never touch the control circuit. **3.** Remove a screw securing the control box assembly. **4.** Disconnect the connectors from the control circuit board.
Removal of P.C.B Assembly		**1.** Pull the lever end of the plastic fastener and remove the Flexible Printed Circuit(FPC) of membrane panel. **2.** Remove screws (4) securing the control circuit board. **3.** Lift up the control circuit board from the Ass'y control box. **4.** When reconnecting the FPC connector, make sure that the holes on the connector are properly engaged with the hooks on the Plastic Fastener.

3-8 Replacement of Cooktop lamp

When replacing the night light, make sure that you are wearing gloves to avoid injury from the heat of the bulb.

Parts	Explaination Photo	Explaination
Cooktop Lamp		**1.** Unplug the oven or turn off the power at the main power. **2.** Remove the bulb cover, and mounting screws. **3.** Replace the bulb with a 40 watt appliance bulb. **4.** Replace the bulb cover and mounting screws. **5.** Turn the power back on at the main power supply.

3-9 Replacement of Oven Light

Parts	Explaination Photo	Explaination
Oven Light	  	**1.** Remove the Grille **2.** Remove the COVER LAMP by push the hook and put up the lever. **3.** Replace the bulb with a 40 watt appliance bulb.

4-1 Parts checking method

Parts	Photo	Good	No Good
Fuse		0.1 ~ 1 Ω	100 MΩ exceed
T.C.O		0.1 ~ 1 Ω	100 MΩ exceed
H.V Trans		1 ~ 9 Ω	100 MΩ exceed
Convection		100 ~ 990 Ω	100 MΩ exceed
Fan Motor		10 ~ 99 Ω	100 MΩ exceed
Grill Heater		10 ~ 99 Ω	100 MΩ exceed

4-2 Error Code Numbering Rule

1. ERROR CODE NUMBERING RULE is applied to a microwave oven and an oven.(CMO, OTR, Grill, Convection, Commercial etc.)
2. All sensors and devices have their own number. ex) Gas Sensor = 1, Temp. Sensor = 2, ...
3. Of each device, No.1 and No.2 refer to “Open Error” (not sensed) and “Short Error”, respectively.
4. This numbering rule has been applied to models to have been developed since January, 1, 2005. (But, GE or Customize model are excluded.)

E	-	1	1

DEVICE
0- Others
1- Gas Sensor
2- Temp. Sensor
3- Weight Sensor
4- Easy/PH Sensor
5- EEPROM
•
•
•

ERROR CASE
1- Open
2- Short
•
•
•

4-3 Error Code List

Gas Sensor

Error Code	Gas Sensor Error Case (E-1X)	Solution	Page
E-11	Open	Check Sensor part ,connection of sensor housing and PCB’s connector.	21 Page
E-12	Short		22 Page
E-13	T1 Max Time Error		23 Page
E-14	Dry Up / No Load	Insert food and restart.	

Temp Sensor

Error Code	Temp. Sensor Error Case (E-2X)	Solution	Page
E-21	Open	Check sensor part and connection of sensor housing and PCB’s connector.	21 Page
E-22	Short		22 Page
E-23	T1 Max Time Error (Preheating not completed)	Check heater.	30 Page
E-24	Over temperature error		33 Page
E-25	In case abnormal temperature is sensed at Micro Cook	Cool down set and restart.	33 Page
E-26	In case the temperature is not over the fixed AD in first 3 minutes after cooking by heater starts.	Check sensor and heater.	30 Page

Eeprom Error

Error Code	EEPROM Error Case (E-5X)	Solution	Page
E-51	Open (Sense Failure)	Replace EEPROM and restart.	28 Page
E-53	Read/Write Error		
E-54	Zero not to be set		

4. Troubleshooting

Weight Sensor

Error Code	Gas Sensor Error Case (E-1X)	Solution	Page
E-31	Open (When value of HEX is above “FF” for 5 seconds)	Check Sensor.	21 Page
E-32	Short		22 Page
E-33	In case the initial value of HEX is under “14” for 30 seconds while a weight sensor in operation.		25 Page
E-34	In case the initial value of K calculated by a weight sensor is above and under “±28” as value of HEX.		
E-35	In case the value of A is “-” as a weight sensor calculates.		
E-36	In case the door opens during sensor cooking.	Cancel the present mode and restart from the begining.	26 Page

Easy/Ph Sensor

Error Code	Easy/PH Sensor Error Case (E4)	Solution	Page
E-41	Open	Check Sensor.	21 Page
E-42	Short		22 Page
E-43	T1 Max Time Error		23 Page
E-44	Dry Up	Insert food and restart.	23 Page
E-45	Cooling Error (3minutes)	Remove moisture from sensor and restart.	26 Page
E-46	Primary Open Error(3minutes)	Check Sensor.	21 Page
E-47	The door opens during cooking	Cancel the present mode and restart from the begining.	26 Page

Humidity Sensor

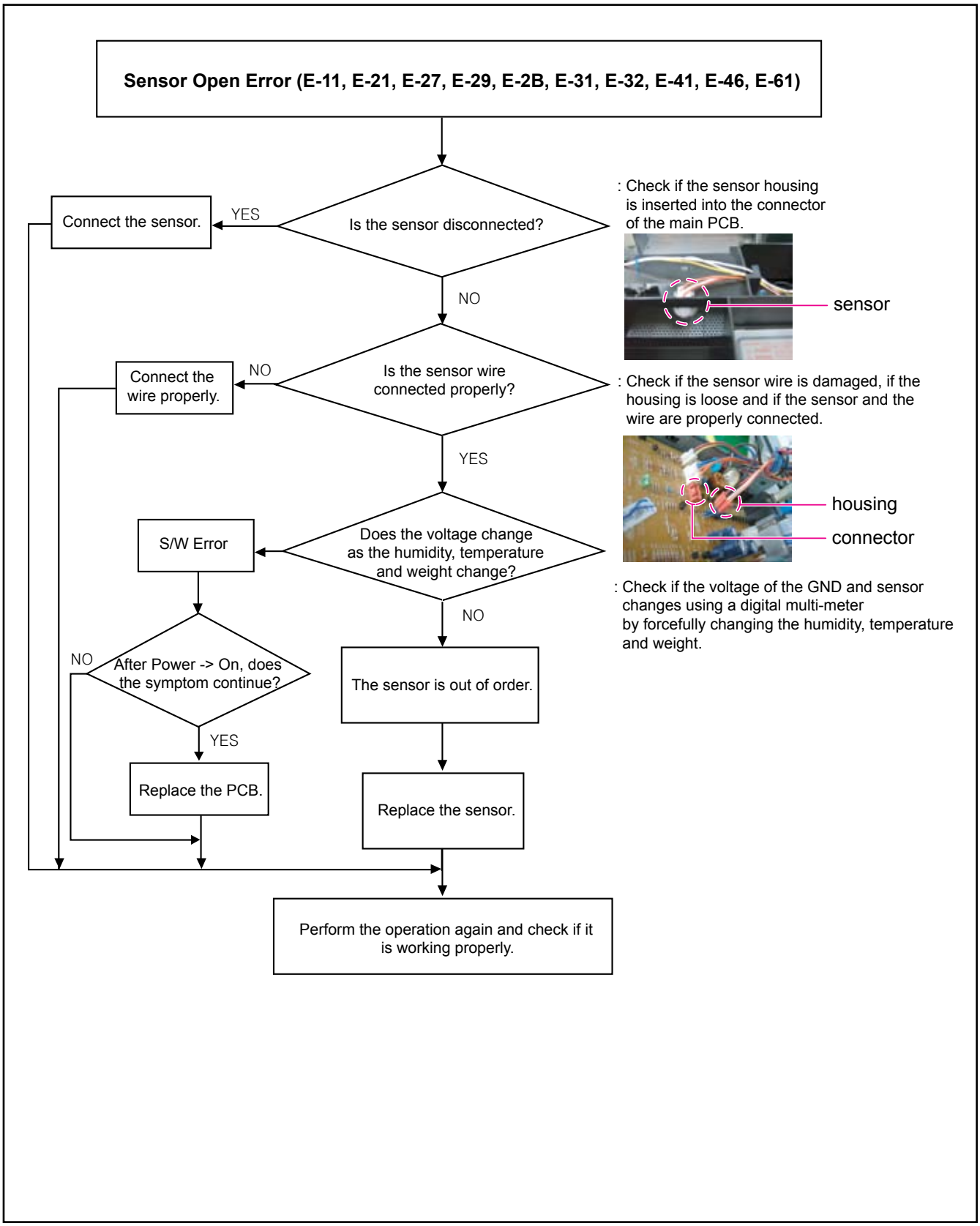
Error Code	Humidity Sensor Error Case (E-6X)	Solution	Page
E-61	Open	Check Sensor.	21 Page
E-62	Short		22 Page
E-63	T1 Max Time Error		23 Page

Others

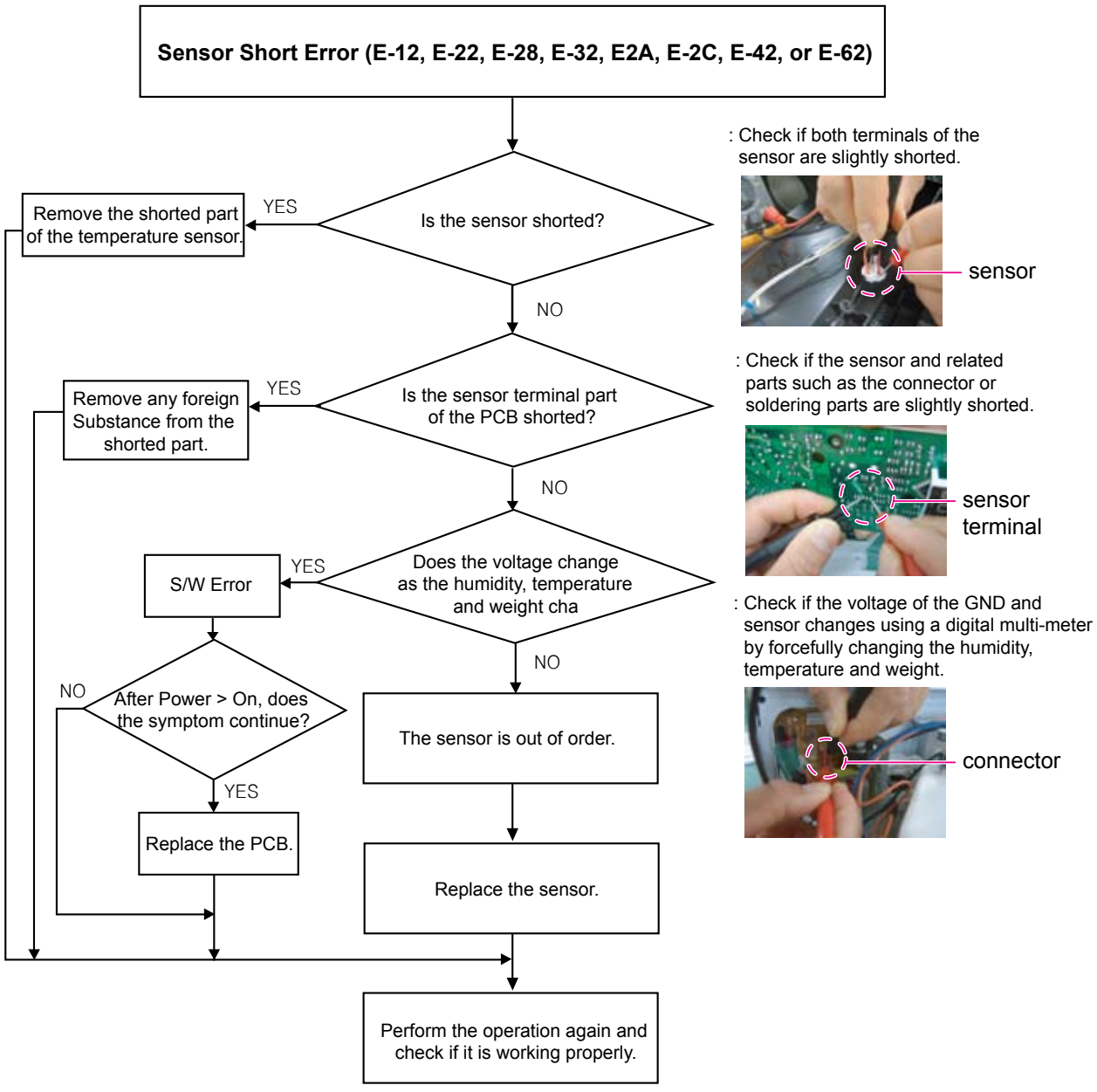
Error Code	Others (E-0X, Letter)	Solution	Page
-SE-	Key Short Error (10 seconds)	Turn off set and restart.	24 Page
E-02	Cooking Time Setting Over Error (MWO)	Check each mode’s setting time.	30 Page
E-03	Cooking Time Setting Over Error (Grill)		
E-04	Cooking Time Setting Over Error (Convection)		
E-05	Cooking Time Setting Over Error (Combination)		
E-06	It fails to sense that the swing heater has stopped for 20 seconds during cooking.	Check Swing heater’s motor and connector.	34 Page

4-4 Electrical Malfunction

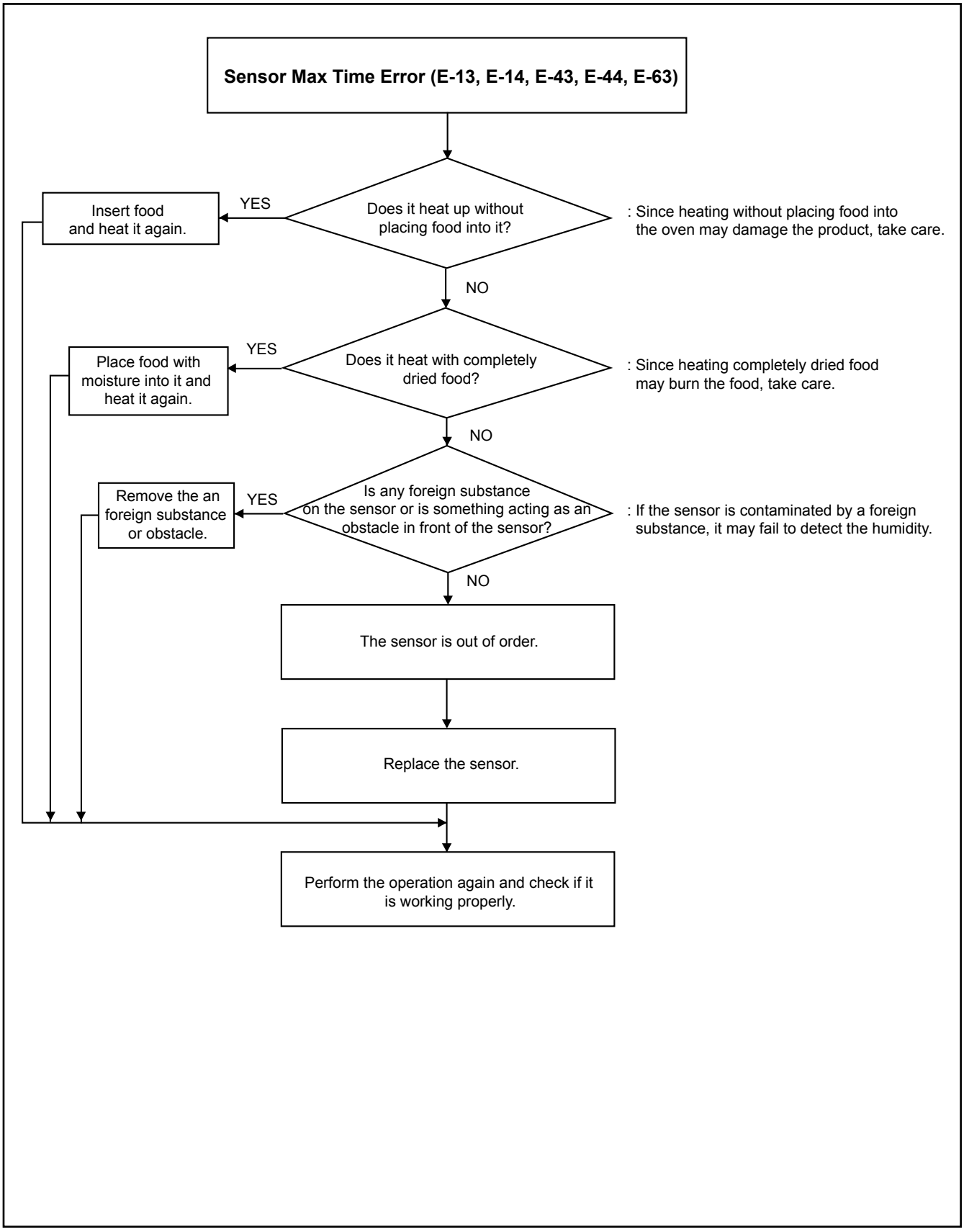
4-4-1 E-11, E-21, E-27, E-29, E-2B, E-31, E-32, E-41, E-46, E-61


Sensor Open Error (E-11, E-21, E-27, E-29, E-2B, E-31, E-32, E-41, E-46, E-61)
Is the sensor disconnected?
YES
Connect the sensor.
NO
Is the sensor wire connected properly?
NO
Connect the wire properly.
YES
Does the voltage change as the humidity, temperature and weight change?
S/W Error
NO
After Power -> On, does the symptom continue?
NO
YES
Replace the PCB.
The sensor is out of order.
Replace the sensor.
Perform the operation again and check if it is working properly.
: Check if the sensor housing is inserted into the connector of the main PCB.
sensor
: Check if the sensor wire is damaged, if the housing is loose and if the sensor and the wire are properly connected.
housing
connector
: Check if the voltage of the GND and sensor changes using a digital multi-meter by forcefully changing the humidity, temperature and weight.

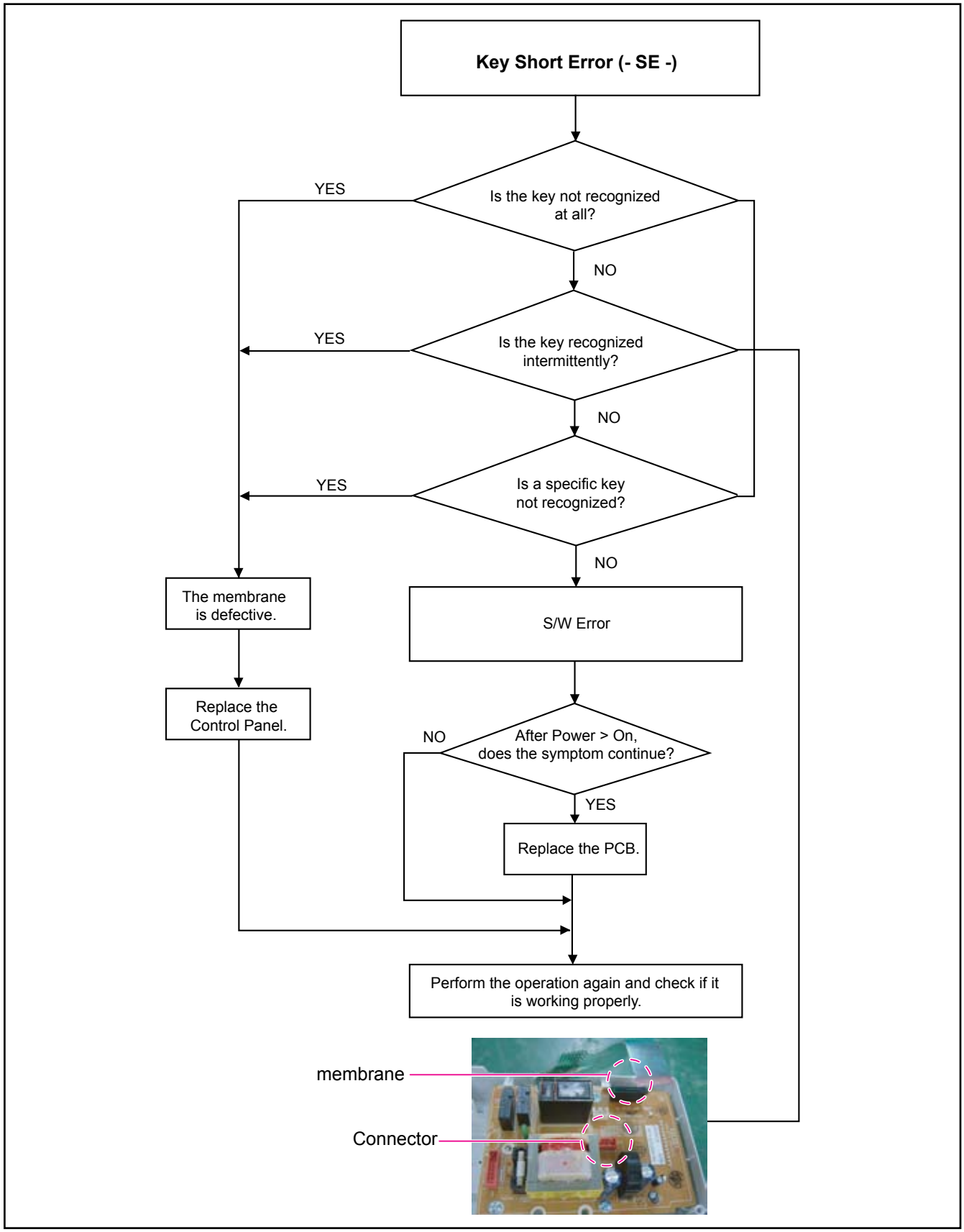
4-4-2 E-12, E-22, E-28, E-32, E2A, E-2C ,E-42, E-2C, E-42 or E-62


Sensor Short Error (E-12, E-22, E-28, E-32, E2A, E-2C, E-42, or E-62)
Is the sensor shorted?
YES
Remove the shorted part of the temperature sensor.
NO
Is the sensor terminal part of the PCB shorted?
YES
Remove any foreign Substance from the shorted part.
NO
Does the voltage change as the humidity, temperature and weight cha
YES
S/W Error
NO
After Power > On, does the symptom continue?
YES
Replace the PCB.
NO
The sensor is out of order.
Replace the sensor.
Perform the operation again and check if it is working properly.
: Check if both terminals of the sensor are slightly shorted.
sensor
: Check if the sensor and related parts such as the connector or soldering parts are slightly shorted.
sensor terminal
: Check if the voltage of the GND and sensor changes using a digital multi-meter by forcefully changing the humidity, temperature and weight.
connector

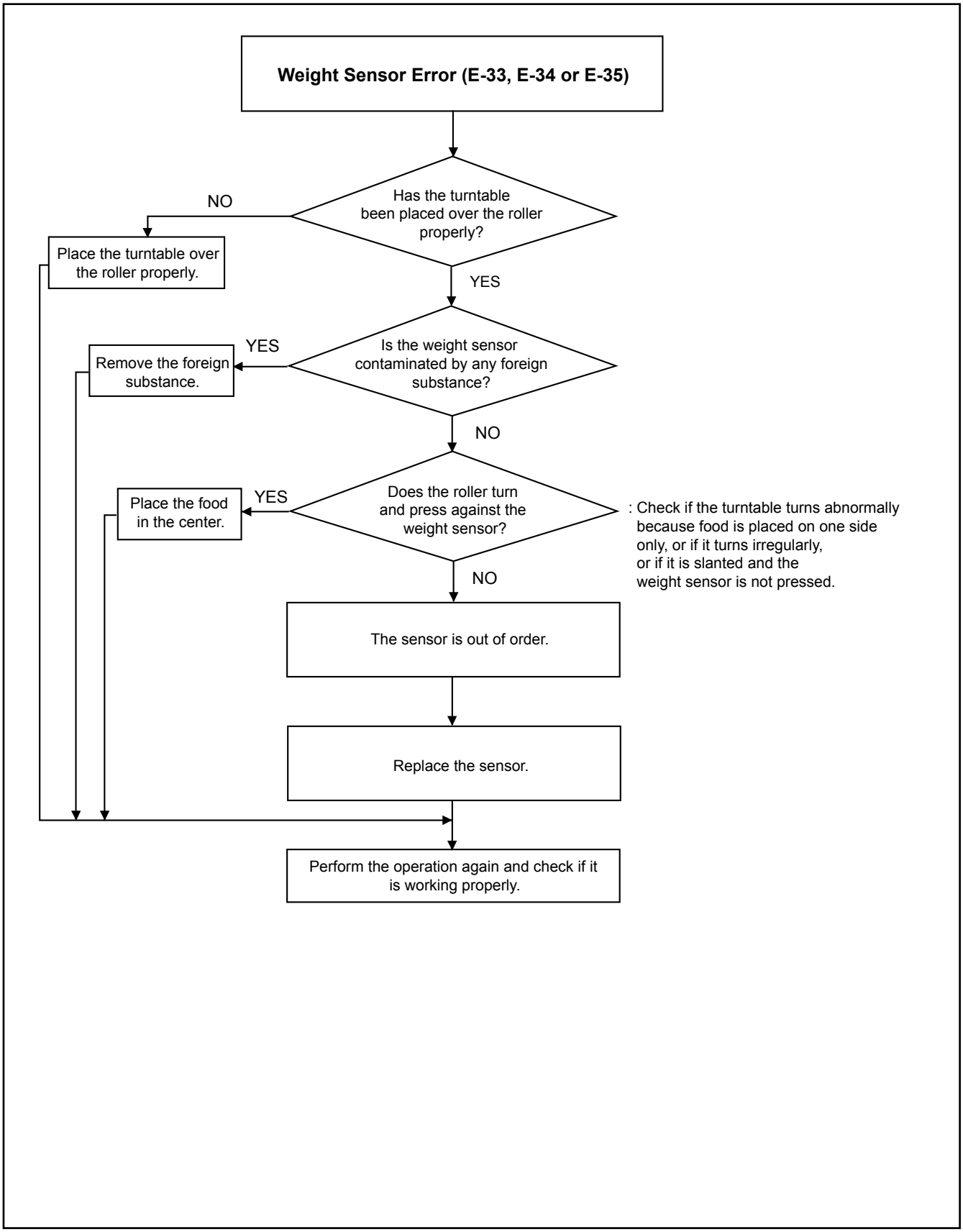
4-4-3 E-13, E-14, E-43, E-44, E-63


Sensor Max Time Error (E-13, E-14, E-43, E-44, E-63)
Does it heat up without placing food into it?
YES
Insert food and heat it again.
: Since heating without placing food into the oven may damage the product, take care.
NO
Does it heat with completely dried food?
YES
Place food with moisture into it and heat it again.
: Since heating completely dried food may burn the food, take care.
NO
Is any foreign substance on the sensor or is something acting as an obstacle in front of the sensor?
YES
Remove the an foreign substance or obstacle.
: If the sensor is contaminated by a foreign substance, it may fail to detect the humidity.
NO
The sensor is out of order.
Replace the sensor.
Perform the operation again and check if it is working properly.

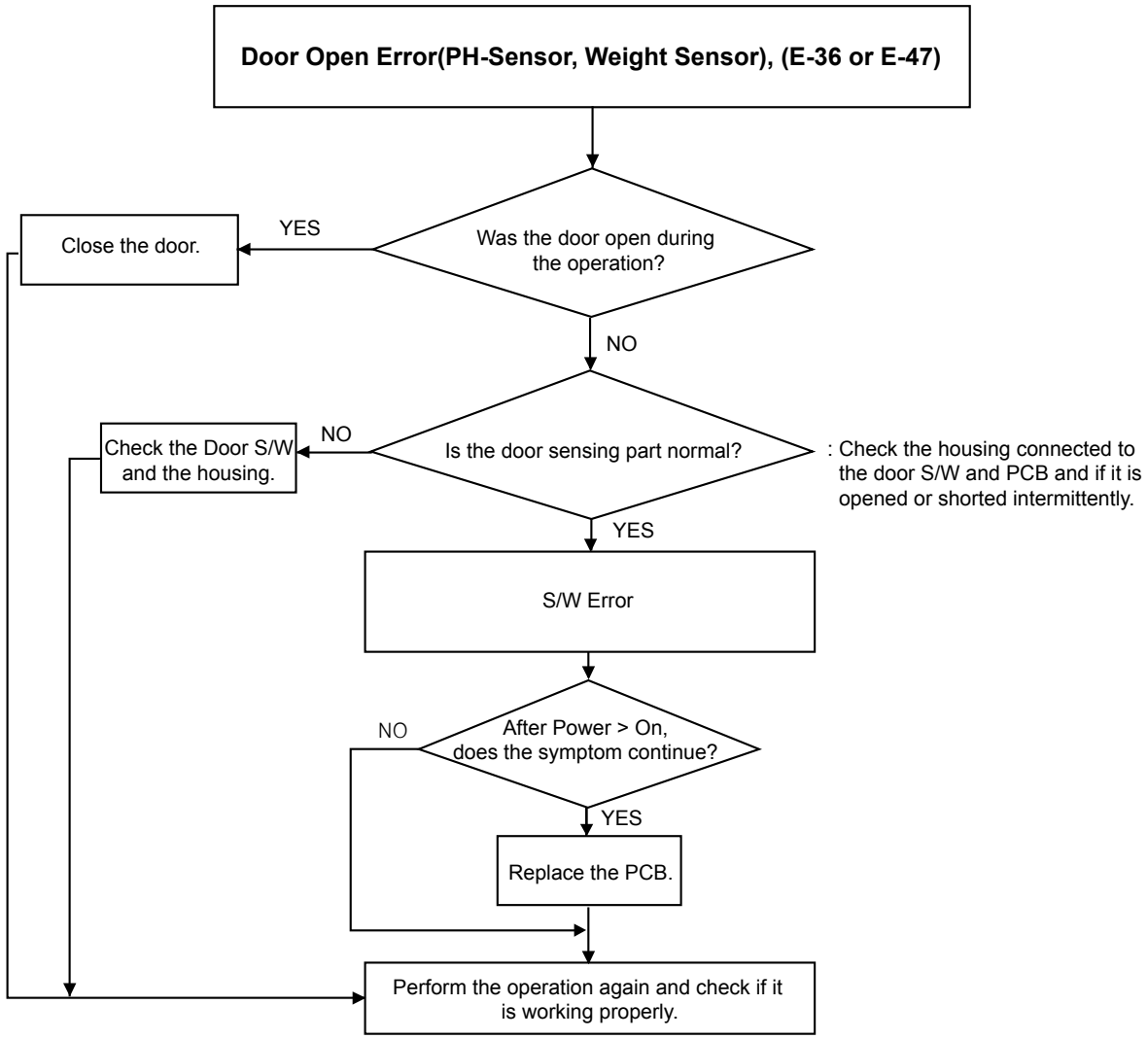
4-4-4 -SE-


Key Short Error (- SE -)
Is the key not recognized at all?
YES
NO
Is the key recognized intermittently?
YES
NO
Is a specific key not recognized?
YES
NO
The membrane is defective.
Replace the Control Panel.
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.
membrane
Connector

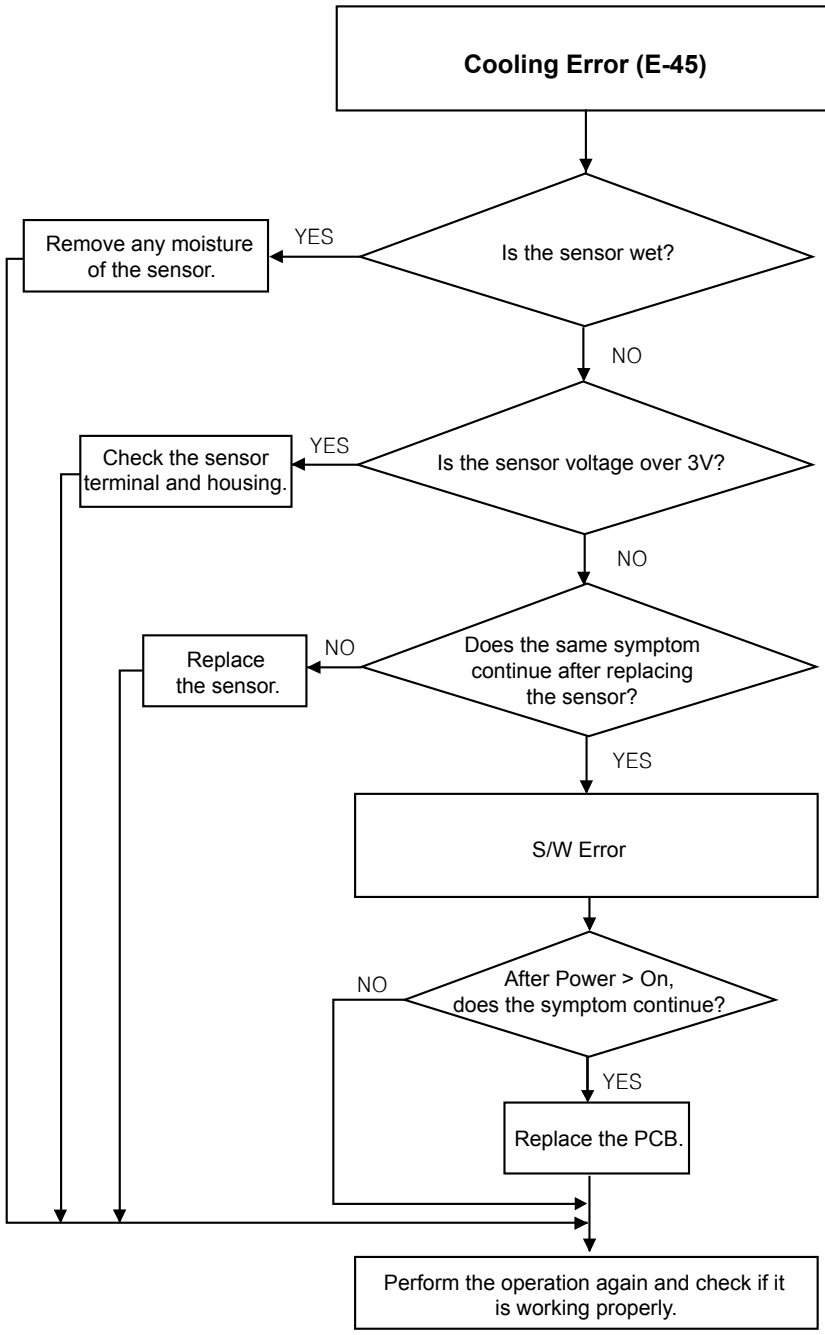
4-4-5 E-33, E-34 or E-35


Weight Sensor Error (E-33, E-34 or E-35)
Has the turntable been placed over the roller properly?
NO
Place the turntable over the roller properly.
YES
Is the weight sensor contaminated by any foreign substance?
YES
Remove the foreign substance.
NO
Does the roller turn and press against the weight sensor?
YES
Place the food in the center.
NO
: Check if the turntable turns abnormally because food is placed on one side only, or if it turns irregularly, or if it is slanted and the weight sensor is not pressed.
The sensor is out of order.
Replace the sensor.
Perform the operation again and check if it is working properly.

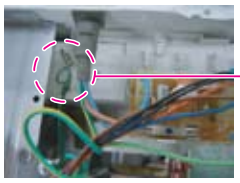
4-4-6 E-36 or E-47


Door Open Error(PH-Sensor, Weight Sensor), (E-36 or E-47)
Was the door open during the operation?
YES
Close the door.
NO
Is the door sensing part normal?
NO
Check the Door S/W and the housing.
: Check the housing connected to the door S/W and PCB and if it is opened or shorted intermittently.
YES
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.

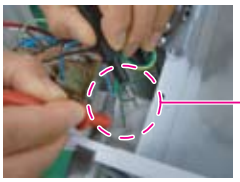
4-4-7 E-45



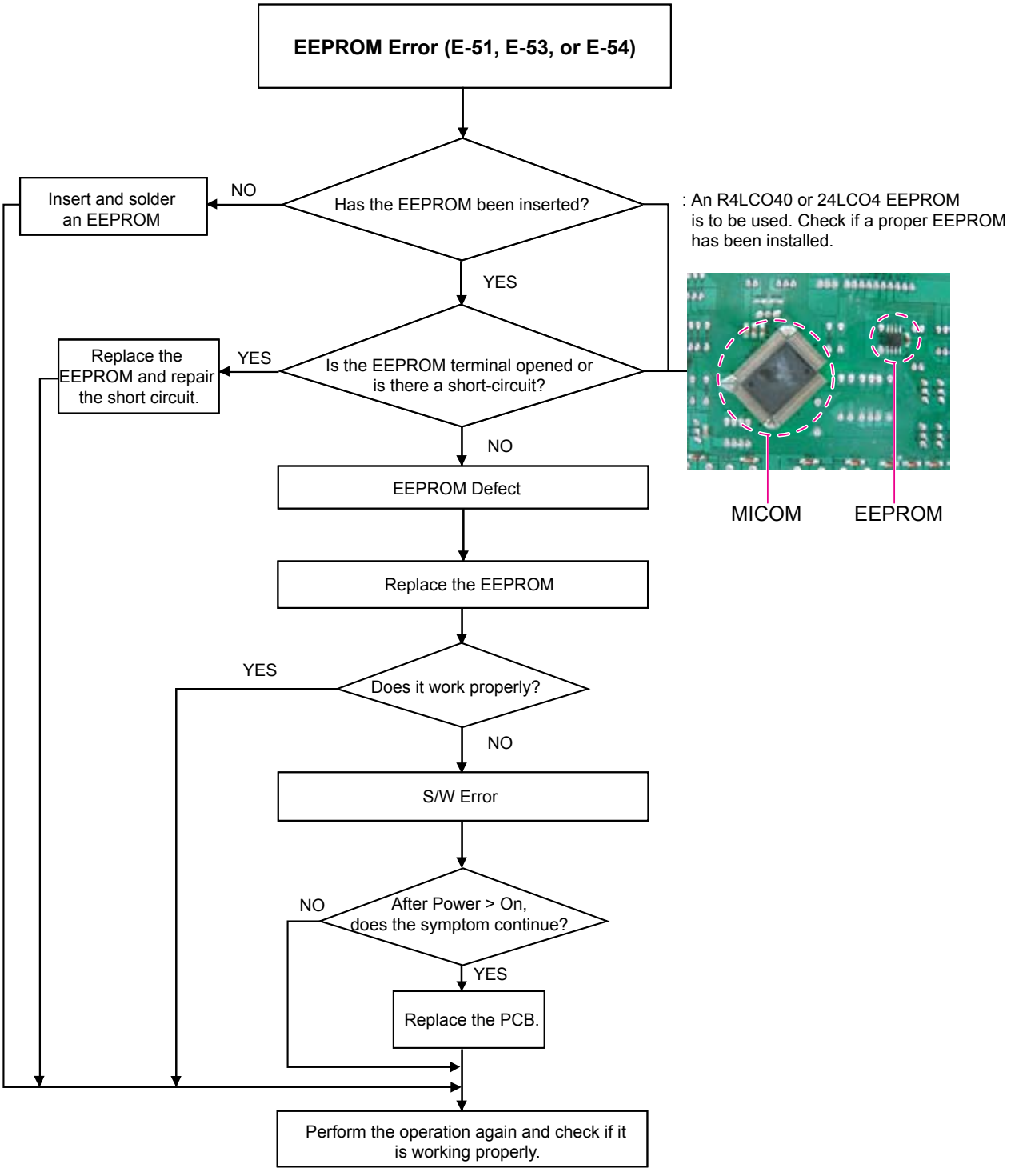
: To remove moisture from the sensor, open the door for 5 minutes.



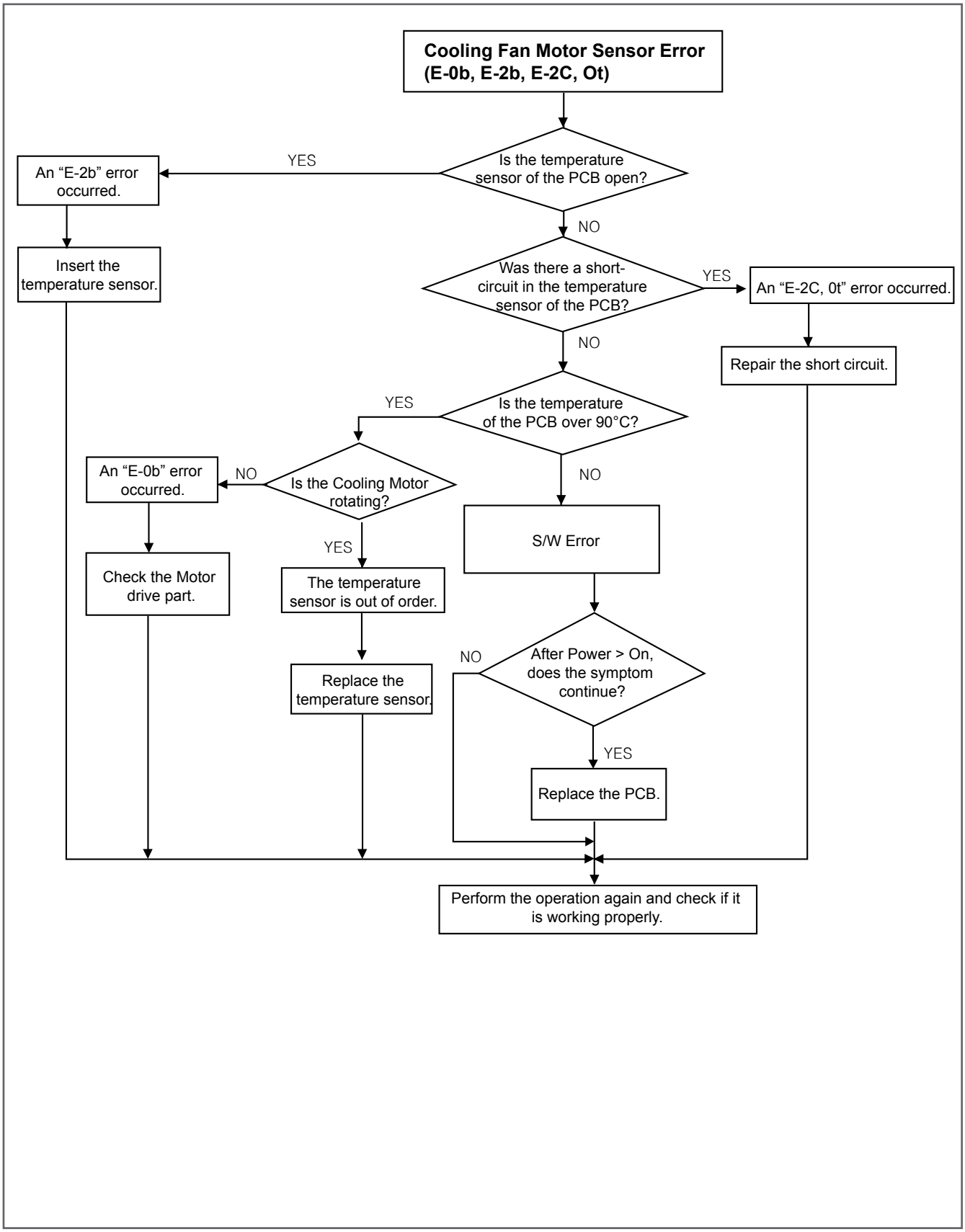
: Check if the GND and sensor terminal is maintained over 3V continuously during the initial cooking course using a multi-meter.



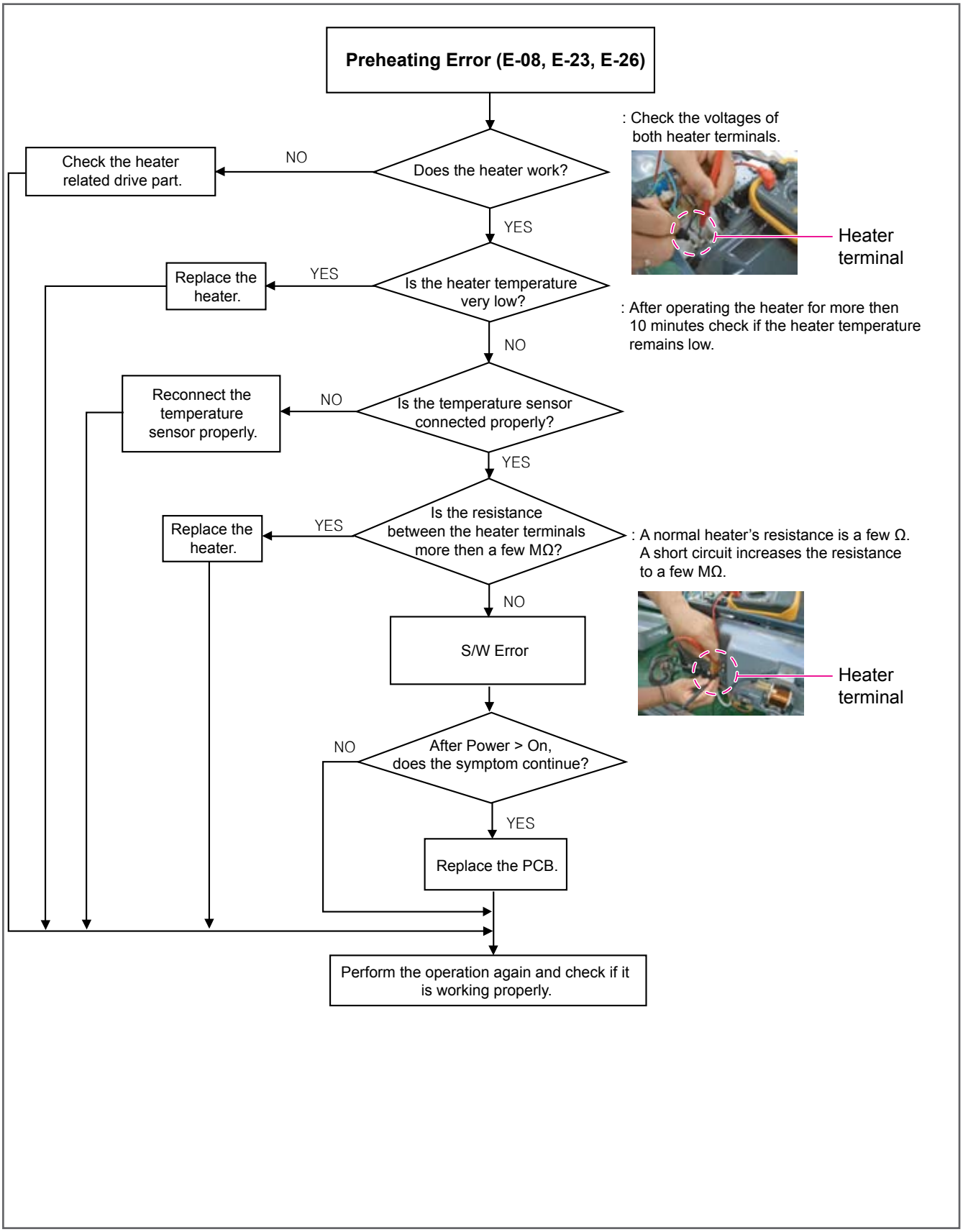
4-4-8 E-51, E-53 or E-54


EEPROM Error (E-51, E-53, or E-54)
Has the EEPROM been inserted?
NO
Insert and solder an EEPROM
YES
Is the EEPROM terminal opened or is there a short-circuit?
YES
Replace the EEPROM and repair the short circuit.
NO
EEPROM Defect
Replace the EEPROM
Does it work properly?
YES
NO
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.
: An R4LCO40 or 24LCO4 EEPROM is to be used. Check if a proper EEPROM has been installed.
MICOM
EEPROM

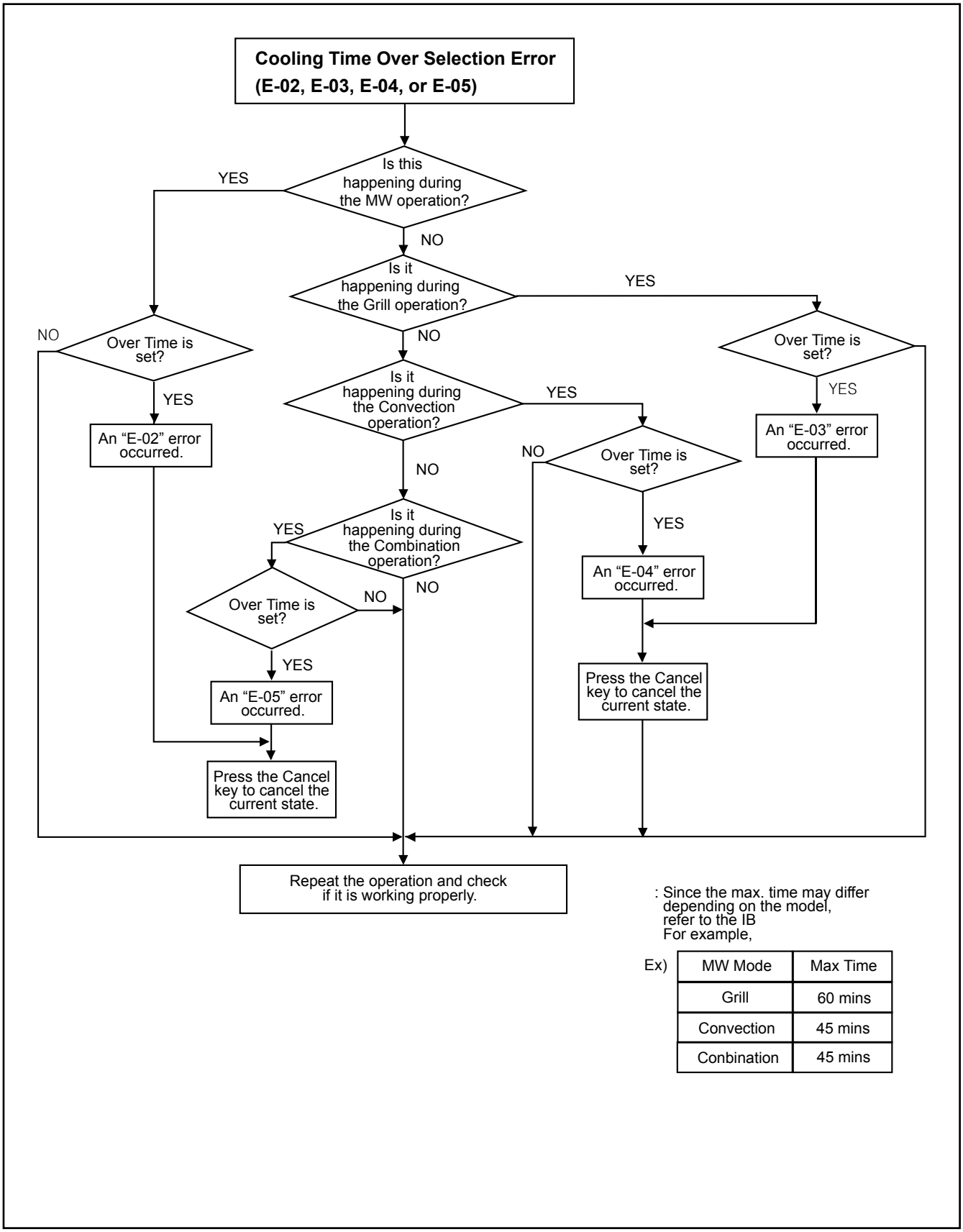
4-4-11 E-0b, E-2b, E-2C, 0t


Cooling Fan Motor Sensor Error
(E-0b, E-2b, E-2C, Ot)
Is the temperature sensor of the PCB open?
YES
An “E-2b” error occurred.
Insert the temperature sensor.
NO
Was there a short-circuit in the temperature sensor of the PCB?
YES
An “E-2C, 0t” error occurred.
Repair the short circuit.
NO
Is the temperature of the PCB over 90°C?
YES
NO
Is the Cooling Motor rotating?
NO
An “E-0b” error occurred.
Check the Motor drive part.
YES
The temperature sensor is out of order.
Replace the temperature sensor.
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.

4-4-12 E-23, E-26


Preheating Error (E-08, E-23, E-26)
Does the heater work?
NO
Check the heater related drive part.
YES
Is the heater temperature very low?
YES
Replace the heater.
NO
Is the temperature sensor connected properly?
NO
Reconnect the temperature sensor properly.
YES
Is the resistance between the heater terminals more then a few MΩ?
YES
Replace the heater.
NO
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.
: Check the voltages of both heater terminals.
Heater terminal
: After operating the heater for more then 10 minutes check if the heater temperature remains low.
: A normal heater's resistance is a few Ω. A short circuit increases the resistance to a few MΩ.
Heater terminal

4-4-13 E-02, E-03, E-04 or E-05

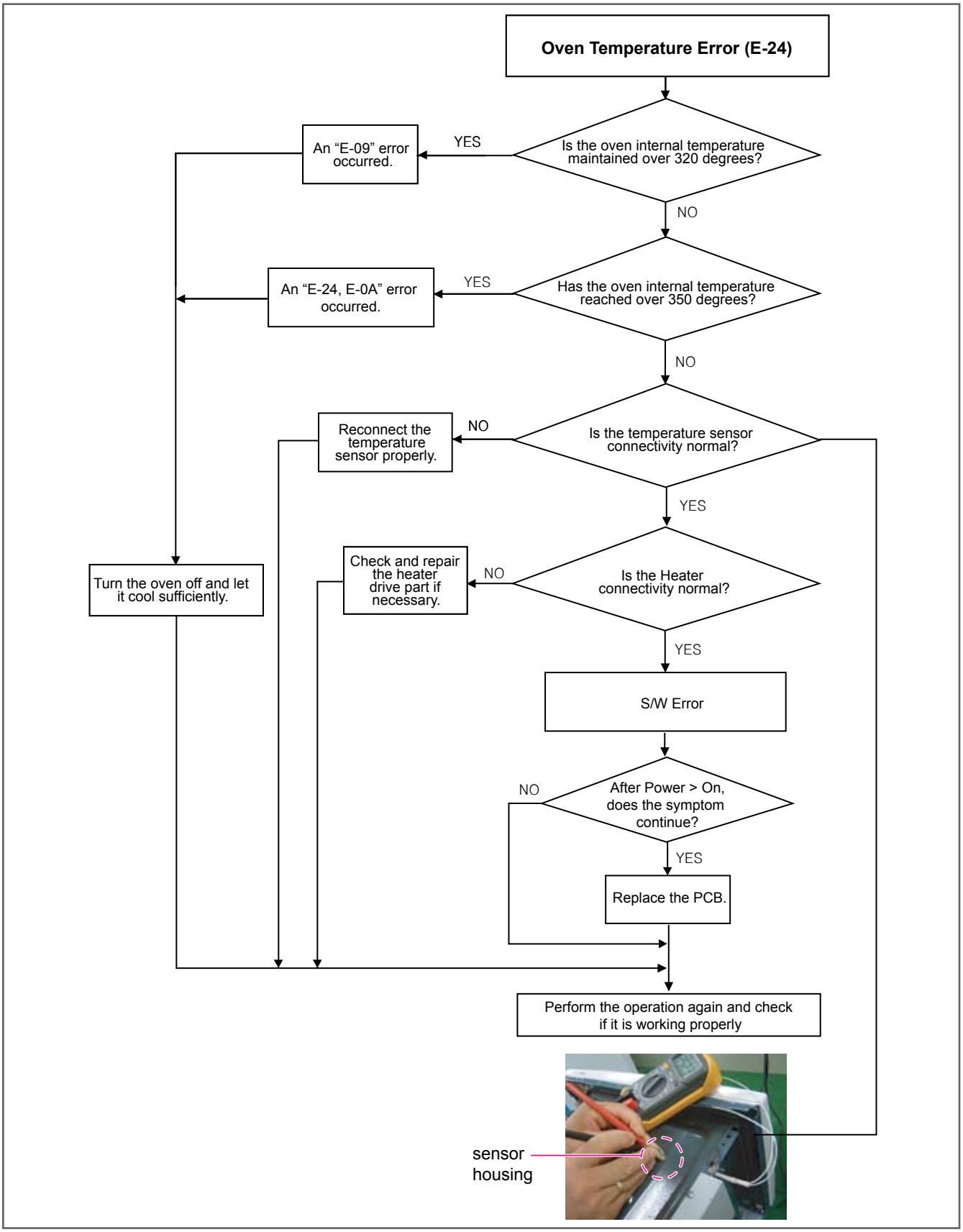


: Since the max. time may differ depending on the model, refer to the IB
For example,

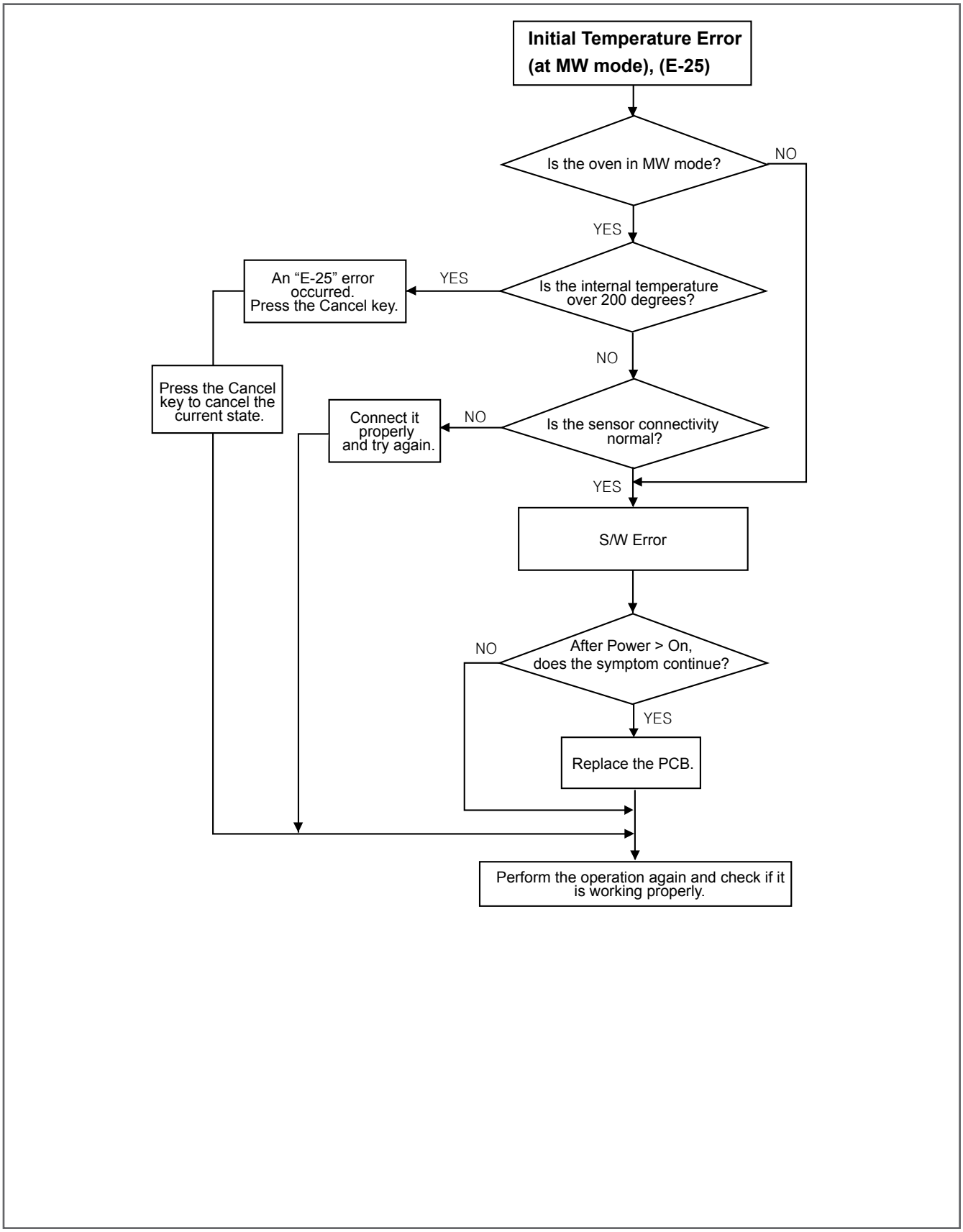
Ex)

MW Mode	Max Time
Grill	60 mins
Convection	45 mins
Conbination	45 mins

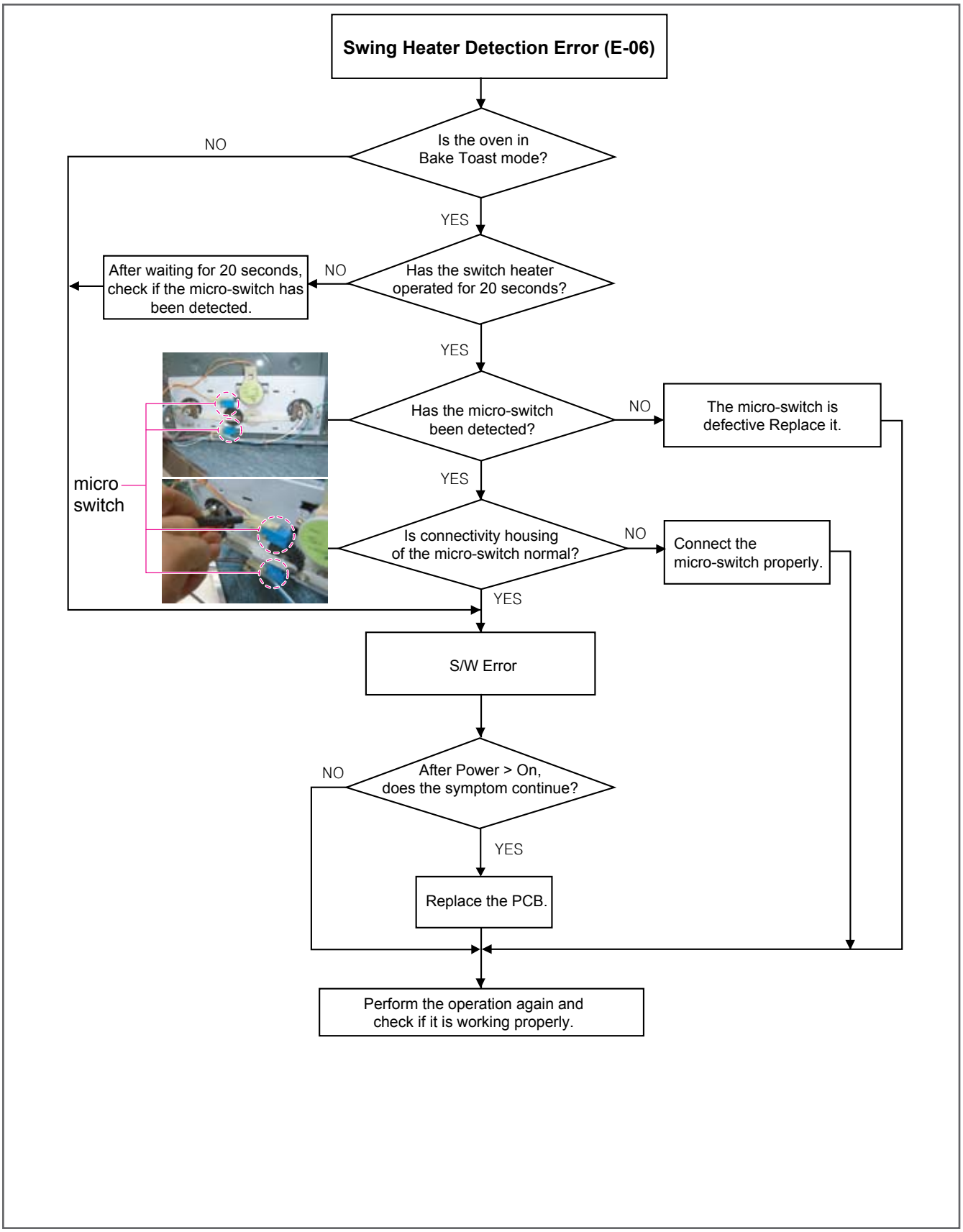
4-4-14 E-24


Oven Temperature Error (E-24)
Is the oven internal temperature maintained over 320 degrees?
YES
An “E-09” error occurred.
NO
Has the oven internal temperature reached over 350 degrees?
YES
An “E-24, E-0A” error occurred.
NO
Is the temperature sensor connectivity normal?
NO
Reconnect the temperature sensor properly.
YES
Is the Heater connectivity normal?
NO
Check and repair the heater drive part if necessary.
YES
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Turn the oven off and let it cool sufficiently.
Perform the operation again and check if it is working properly
sensor housing

4-4-15 E-25


Initial Temperature Error
(at MW mode), (E-25)
Is the oven in MW mode?
NO
YES
Is the internal temperature over 200 degrees?
YES
An “E-25” error occurred.
Press the Cancel key.
NO
Is the sensor connectivity normal?
NO
Connect it properly and try again.
Press the Cancel key to cancel the current state.
YES
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.

4-4-16 E-06


Swing Heater Detection Error (E-06)
Is the oven in Bake Toast mode?
NO
YES
Has the switch heater operated for 20 seconds?
NO
After waiting for 20 seconds, check if the micro-switch has been detected.
YES
Has the micro-switch been detected?
NO
The micro-switch is defective Replace it.
YES
micro switch
Is connectivity housing of the micro-switch normal?
NO
Connect the micro-switch properly.
YES
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the PCB.
Perform the operation again and check if it is working properly.

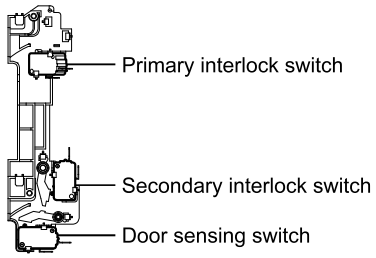
4-4-17 If oven malfunction

Oven does not operate.

***Inspection method**

Caution
1. Be careful of high voltage circuits.
2. Discharge high voltage capacitor.

Is Fuse OK?
- NO → Is Primary interlock switch normal?
  - NO → Make sure to inspect the power relay after replacing primary interlock switch, secondary interlock switch and door sensing switch.

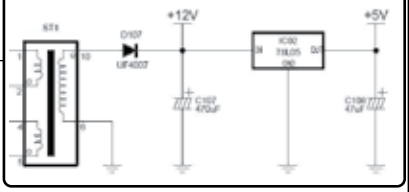


< Latch switch assembly >

  - YES → Is Power Relay normal?
    - NO → Replace Relay
- YES

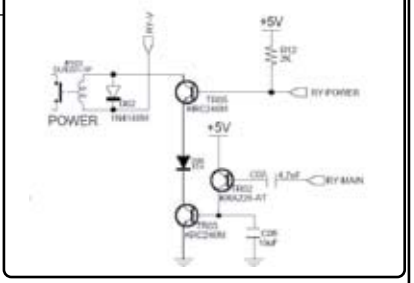
Is the magnetron temperature switch normal?
- NO → Replace switch
  - NO → Check a fan motor after replacing switch
- YES

Is SMPS power supply cirduit normal?
- NO → Do check power supply circuit
  - NO → Power supply circuit check point



- YES

Is the IC01 output of PCB normal?
- NO → Do check Relay control circuit
  - NO → Relay control circuit check point



- YES

Checking high voltagecircuts
- Is high voltage dioed normal?
- Is high voltage dioed normal?
  - NO → In case any of high voltage parts is damaged, check all parts related to high votlage.
  - YES → Is high voltage capacitor normal?
    - NO → In case any of high voltage parts is damaged, check all parts related to high votlage.
    - YES → Is magnetron normal?
      - NO → In case any of high voltage parts is damaged, check all parts related to high votlage.

4-4-18 If button malfunction

Buttons of the control panel do not work.

***Inspection method**

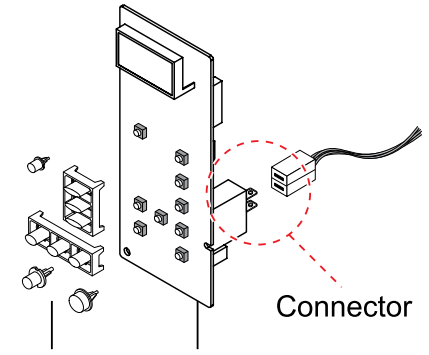
Are button pressed in the correct order?

NO → Refer to User Manual

YES

Is the connector of the control panel normal?

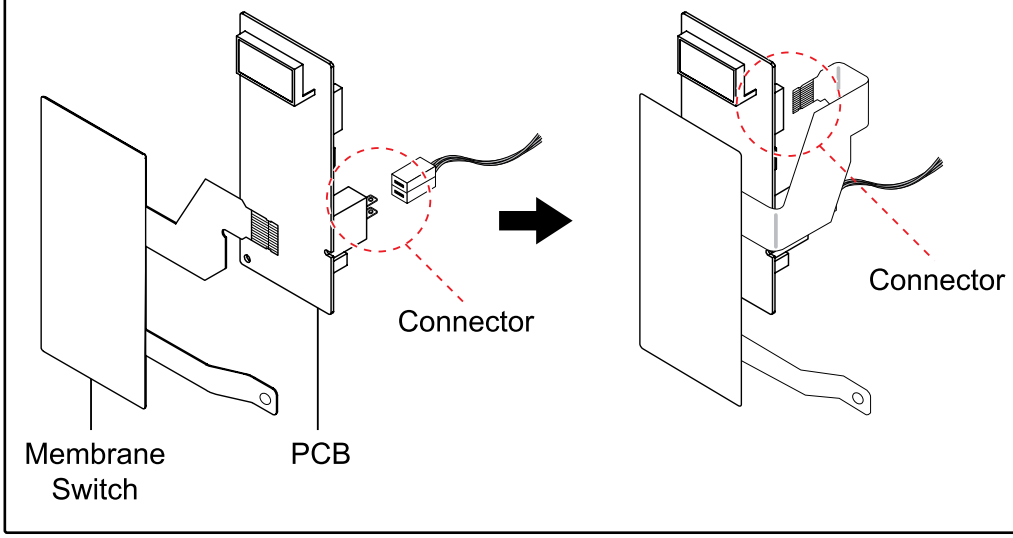
NO → Tact type



YES

Replace PCB.

Menbrane type



4-4-19 If food is not heated even though an oven works

Food is not heated even though an oven works.

***Inspection method**

Is the latch switch operating normally?

NO

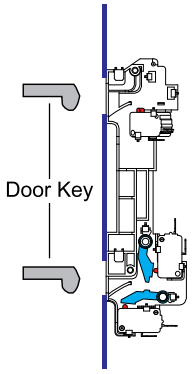
Method to control latch switch

YES

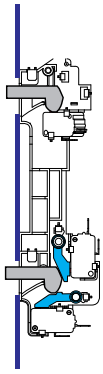
Checking high voltage circuits

Refer to "Checking high voltage circuits" on the previous page.

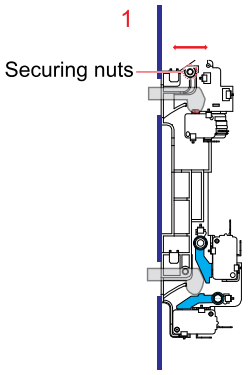
*Door open



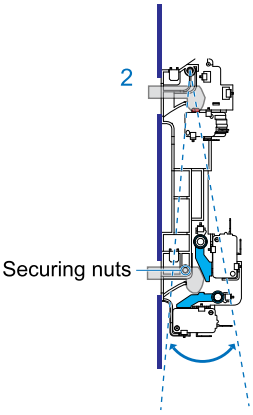
*Door closed



Method to control latch switch

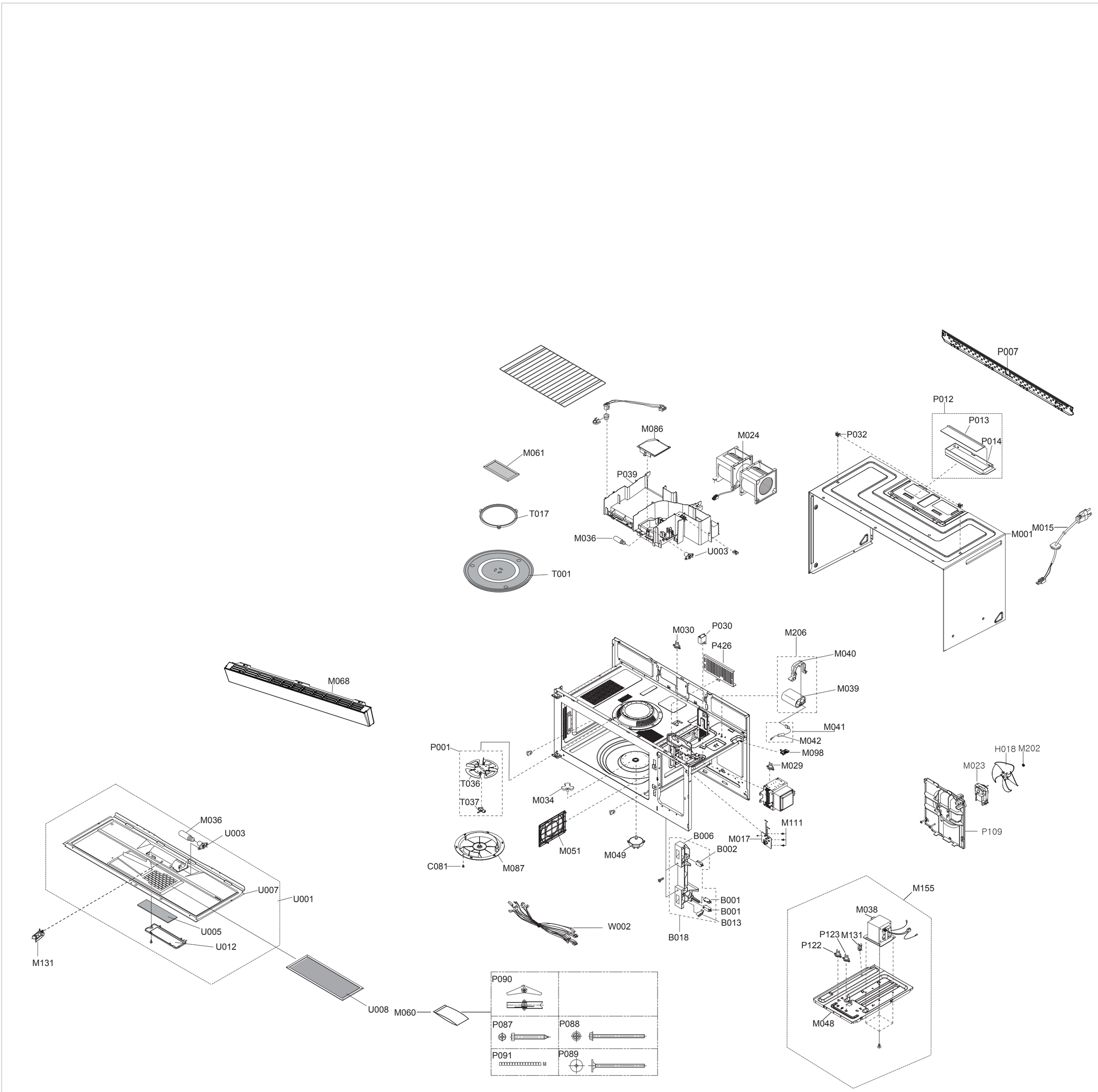


1. Loosenly tighten the nuts to check whether the primary interlock switch works by slightly moving latches to right and left.
Then firmly tighten nuts.



2. Loosenly tighten the nuts to check whether the secondary interlock switch and door sensing switch works by slightly moving latches to right and left.
Then firmly tighten nuts.

5-1 Exploded Views



5-2 Main Parts List

(SNA : SERVICE NOT AVAILABLE)

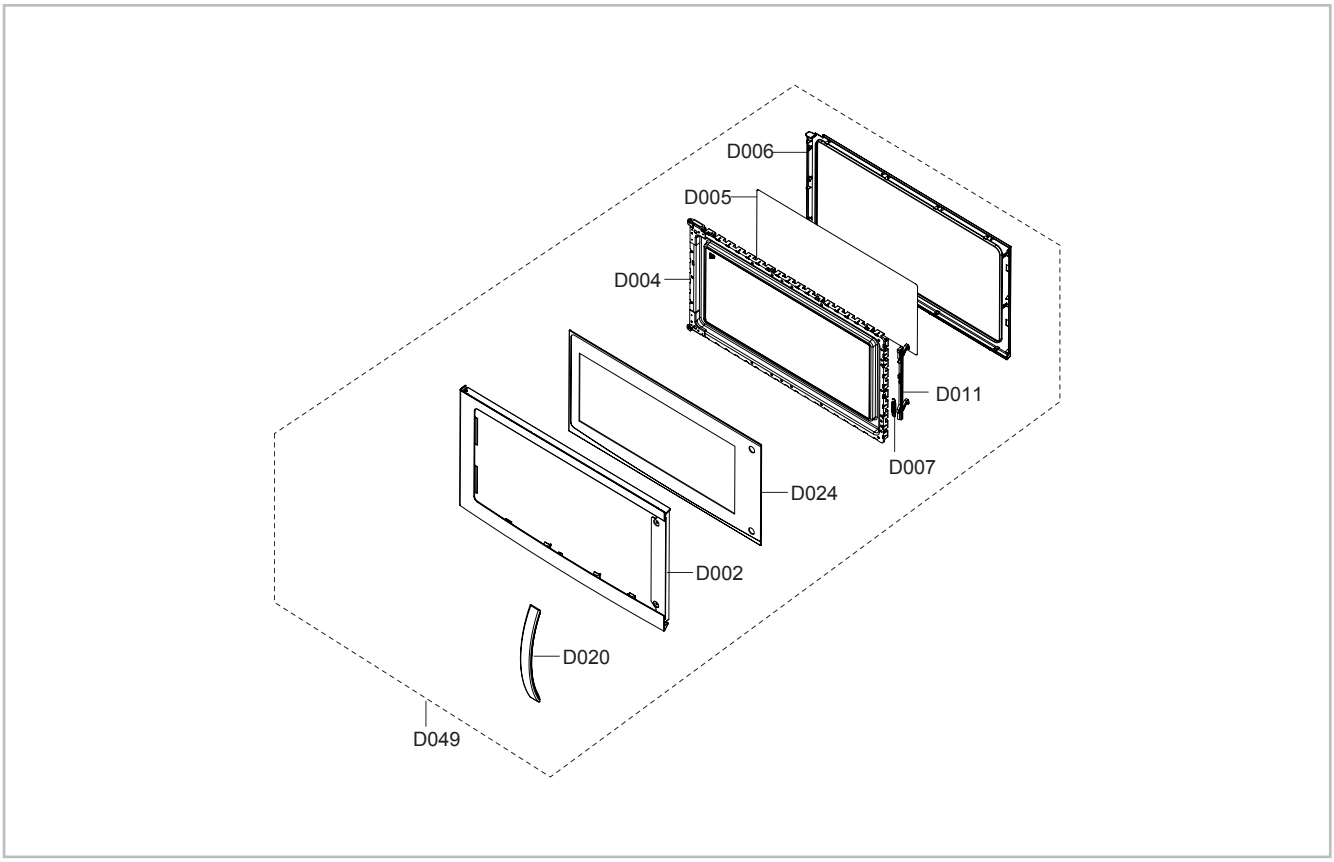
No.	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
B001	3405-001034	SWITCH-MICRO	125/250VAC,16A,200GF,SPST-N	2	SA	-
B002	3405-001033	SWITCH-MICRO	125/250VAC 16A,200GF,SPSTNC	1	SA	-
B006	DE66-00168A	LATCH-BODY	MODULAR-2,PP,-,-,-,-,-	1	SA	-
B013	DE66-90106B	LEVER-SWITCH LOWER	PP,T1.4,-,-,2.0g,OTR	1	SA	-
B018	DE96-00414A	ASSY BODY LATCH	RVM-1625BJ,-	1	SA	-
C081	DE66-20095B	BUTTON-LOCK	-,-,OTR5,-,-,TB53)	1	SA	COVER STIRRER
H018	DE31-90051A	BLADE-FAN	P.P,T,D130,-,-,-,-	1	SA	-
M001	DE64-02083B	PANEL-OUTER	MODULAR3,SECC,T0.4,-,-,-,BLA	1	SA	-
M015	DE96-00218C	ASSY POWER CORD	UL,USA,125V/15A,1000MM,2	1	SA	-
M017	DE96-00400A	ASSY NOISE FILTER	SN-UF12A,250V20A,OTR7,	1	SA	CAVITY UPPER
M023	DE31-10155T	MOTOR-FAN	SMF-437UA3,120V60HZ,2780RPM	1	SA	-
M024	DE31-00028L	MOTOR VENTILATION	-,SMV-280UAL,-,-,-,-,2	1	SA	-
M029	DE47-20007A	THERMOSTAT	PW-2N(160/60)187Z,250V7.5A,16	1	SA	MGT
M030	DE47-20196A	THERMOSTAT	NT-101NA(8XV)P,100/0,250V/7.5	1	SA	CAVITY UPPER
M034	DE67-00236A	COUPLER	MMV1163,SPS,-,-,-,MODULAR-3	1	SA	-
M036	4713-001013	LAMP-INCANDESCENT	130V,-,40W,ORG,E17/20,	1	SA	DUCT UPPER
M036	4713-001013	LAMP-INCANDESCENT	130V,-,40W,ORG,E17/20,	1	SA	-
M038	DE26-00143C	TRANS H.V	SHV-U1750C,120V,60HZ,2380V/3.5	1	SNA	-
M039	2501-001011	C-OIL	910nF,2100V,BK,54x35x75mm,20mm	1	SA	-
M040	DE61-00115A	BRACKET-HVC	SMH7175,SECC,T0.6,-,-,-,-	1	SA	-
M041	DE91-70063D	ASSY-HVD	HV03-12,MWO-GE,RED	1	SA	-
M042	DE59-00002A	DIODE-H.V	2CL4512H,450mA, 13KV,MWO ALL,	1	SA	-
M048	DE61-01048A	BASE-PLATE	MODULAR3,SECC,T0.5,-,-,-,-	1	SNA	-
M049	DE31-10172B	MOTOR SYNCHRONOUS	SM16FBY36P1AW3,OTR,-,F	1	SA	T/T
M051	DE63-00532A	COVER-MGT	MODULAR3,PP,-,-,-,-,-,-	1	SA	-
M060	DE92-90505G	ASSY-HARD WARE	MMV1153,-,-,-	1	SA	-
M061	DE63-00367E	FILTER-CHARCOAL	MODULAR-2,AL,CARBON,T9,W	1	SA	FILLER SET
M068	DE64-02139D	GRILLE	SMH9151,PC,-,-,-,-,SILVER,1.5	1	SA	-
M086	DE63-00541A	COVER-LAMP	MD3,SECC,0.4,-,-,-,-,-,-	1	SA	DUCT UPPER
M087	DE63-00534A	COVER-STIRRER	MODULAR3,PP,-,-,-,-,-,-,-	1	SA	-
M098	DE61-00164A	HOLDER-WIRE	OTR8,PP(JI350),-,-,-,NTR,-	1	SA	CAVITY UPPER
M111	DE61-30129A	SUPPORTER-PCB	-,DASS-T9N,-,-,-,-,-	3	SA	N/FILTER + C/UPPER
M131	DE66-00123A	WIRE-SADDLE	JE620/610BF/WF,-,-,-,-	1	SA	ASSY BASE-PLATE
M131	DE66-00123A	WIRE-SADDLE	JE620/610BF/WF,-,-,-,-	1	SA	-
M155	DE94-01926A	ASSY BASE PLATE	MODULAR 3,SECC,T0.5,-	1	SNA	-
M202	DE81-01614A	SPRING-BLADE	D1,0/D9.8,X7XCOILS=5,-,-,-,	1	SNA	-
M206	DE96-00269A	ASSY-HVC	SMH7175,0.91UF HVC	1	SA	-
P001	DE94-01917A	ASSY STIRRER	MMV1163,ALP T0.5	1	SA	-
P007	DE70-00561A	PLATE-MOUNTING	GE 1.6 NEW APPEARANCE,GI,	1	SA	-
P012	DE92-90242D	ASSY-HOOD DAMPER	JVM-1870,JVM250BL OTR4,	1	SA	-
P013	DE71-60051B	COVER-DAMPER	JVM-1870,-,0.22,68,248.4,-,	1	SNA	-
P014	DE72-40022A	DAMPER-MAIN	-,SECC,-,W28,L650,OTR4,-,T0.	1	SNA	-
P030	DE59-50002A	CAPACITOR-MOTOR	SH-M 10UF,220V10UF,-,DMB	1	SA	CAVITY UPPER

5-2 Main Parts List (Continued)

(SNA : SERVICE NOT AVAILABLE)

No.	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
P032	DE92-90508A	ASSY-HOLDER NUT	OTR6,-,-,-,-,-	2	SA	PANEL OUTER
P039	DE67-00232A	DUCT-UPPER	MODULAR3,PP,T1.5,-,-,-,-	1	SA	-
P087	DE60-10111A	SCREW-LAG	-,-,-,-,MSWR,W1/4X50,-,-,-,-	1	SNA	-
P088	DE60-20022A	BOLT-TOGGLE	MSWR,W3/16X75,-,-,-,-,-,-,-	2	SNA	-
P089	DE60-20066A	BOLT-FLAT	UNF1/4,L110,MSWR10,-,-,OTR6,-,	2	SNA	-
P090	DE60-30022A	NUT-TOGGLE	SBC1,ZPC2,WHT,-,-,-,-,-,-	2	SNA	-
P091	DE63-10011A	GROMMET	-,MS,-,-,-,DACB-16,-,-,-	1	SNA	-
P109	DE63-00533B	COVER-MOTOR	MODULAR3,PP TB53	1	SA	-
P122	DE47-20059A	THERMOSTAT	PW-2N(8XV),125V15A,V,120/0,23	1	SA	-
P123	DE47-20034A	THERMOSTAT	40/70,M5,-,-,-,-,-,-	1	SA	-
P426	DE63-00549A	COVER FRONT	;MODULAR3,SECC,T0.5,-,-,-,-,-	1	SA	-
T001	DE63-00536A	TRAY-COOKING	MODULAR3,GLASS,T5.0,-,-,-,C	1	SA	-
T017	DE92-90495C	ASSY GUIDE ROLLER	MD3 1.5/1.7,SPS,TEFLON	1	SA	-
T036	DE31-00055A	BLADE-STIRRER	MODULAR3,ALP1050,-,-,-,T0.	1	SNA	-
T037	DE61-01061A	HOLDER-STIRRER	MD3,SPS,-,-,-,-,-	1	SNA	-
U001	DE97-00679J	ASSY BASE BOTTOM	MD3 SMH8165B,SECC,T0.4,	1	SNA	-
U003	DE47-00006A	HOLDER-LAMP	250V,75W,250X187 2POLE,OTR	1	SA	-
U003	DE47-00006A	HOLDER-LAMP	250V,75W,250X187 2POLE,OTR	1	SA	-
U005	DE67-40063A	GLASS-COOKTOP LAMP	-,GLASS,T3.2,W59,L159	1	SA	-
U007	DE61-00857E	BASE-BOTTOM	MAYTAG1.5/1.6,SECC,T0.4,-,-,	1	SA	-
U008	DE63-00196A	FILTER-AIR	SMH7175,AL-MESH,T2.0,W150,L34	1	SA	-
U012	DE63-00100B	COVER-COOKTOP LAMP	OTR-9,SECC,T0.4,-,-,-	1	SA	-
W002	DE96-00740A	ASSY WIRE HARNESS-A	MMV1163DA,120V/60HZ,	1	SA	-

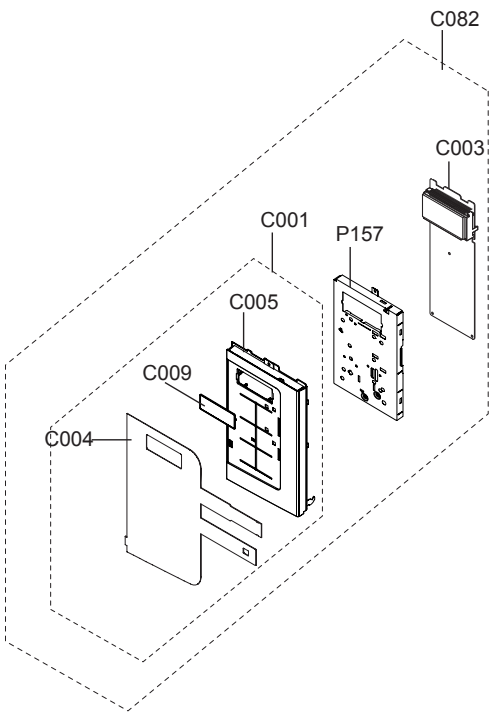
5-3 Door Parts List



(SNA : SERVICE NOT AVAILABLE)

No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
D002	DE64-01949F	DOOR-A	SMH9151S,PC,-,-,-,-,SILVER,NO	1	SNA	ASSY DOOR
D004	DE94-01469G	ASSY DOOR-E	MAYTAG1.5/1.6,-,COATING	1	SA	-
D005	DE01-00091A	FILM-DOOR	-,POLYESTER,-,L458,T0.015,W198	1	SA	-
D006	DE64-02056A	DOOR-C	SMH8165,PP,-,-,-,-,-,ARCADIA	1	SA	-
D007	DE61-00048A	SPRING-KEY	BLUING,HSWR,PI1.95,D8.75,L43	1	SA	-
D011	DE64-01308A	DOOR-KEY	MODULAR-2,POM,-,-,-,-,BLK,-	1	SA	-
D020	DE94-01814A	ASSY HANDLE	SMH8165BG/XAA,-,BLK,ARCADIA	1	SA	ASSY DOOR
D024	DE64-02053A	SCREEN-DOOR(B)	SMH8165,TEMPERED GLASS,T3	1	SA	-
D049	DE94-01811L	ASSY DOOR	SMH9151S,PC,SILVER,NO LOGO	1	SA	-

5-4 Control Parts List



(SNA : SERVICE NOT AVAILABLE)

No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
C001	DE94-01806K	ASSY CONTROL PANEL	SMH9151S,SILVER,PC,1.	1	SNA	ASSY CTRL BOX
C003	RAS-SM6L-01	ASSY PCB PARTS	SMH9151,SMPS,120V60HZ	1	SNA	ASSY CTRL BOX
C004	DE34-00304F	SWITCH MEMBRANE	SMH9151B/XAA,MD3,-,-,PET	1	SA	ASSY CTRL PANEL
C005	DE64-01950D	CONTROL-PANEL	SMH9151S,PC,-,-,-,-,SILVER	1	SNA	ASSY CTRL PANEL
C009	DE64-00766A	WINDOW-DISPLAY	SMH7175,SAN,T2.0,SMOG	1	SA	ASSY CTRL PANEL
C082	DE94-01807N	ASSY CONTROL BOX	SMH9151S,120V60HZ,SILVE	1	SA	-
P157	DE94-01810B	ASSY BRACKET C/PANEL	SMH8165,-,-,MD3-LED	1	SNA	ASSY CTRL BOX

5-5 Standard Parts List

(S.N.A : SERVICE NOT AVAILABLE)

Level	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
1-1	6002-000643	SCREW-TAPPING	TH,+,2S,M4,L10,ZPC(YEL),SW	2	SNA	C/FRONT + B/PLATE,C/UPPER + C/FRONT
1-1	6002-001173	SCREW-TAPPING	FH,+,2S,M4,L12,ZPC(BLK),MS	5	SNA	GRILLE,P/OUTER SIDE
1-1	6003-001568	SCREW-TAPTITE	FH,TORX,-,B-TITE,M4,L14,NI	2	SNA	BODY LATCH
1-1	6006-001170	SCREW-ASSY TAPP	WS,TH,+,M4,L10,ZPC(YEL)	2	SA	N/FILTER GROUND,P/CORD GROUND
1-1	DE60-10045A	SCREW-TAP PH	-,-,FEFZY,-,PH,M3,-,L6,-,-	2	SA	MGT + TCO
1-1	DE60-10051A	SCREW-TAP PH	-,-,MSWR,-,PH,M4,-,L6,-,-	1	SA	T/T MOTOR
1-1	DE60-10062A	SCREW-TAP TH	-,-,FEFZB,-,TH,M4,-,L12,-,-	3	SNA	C/FRONT + C/BOX,P/OUTER + D/UPPER
1-1	DE60-10067A	SCREW-TAP TH	-,-,FEFZB,2-SLOT,TH,M4,-,L8	8	SA	BASE BOTTOM,P/OUTER SIDE
1-1	DE60-10080A	SCREW-WASHER	-,-,-,-,M5,L12,-,2S,-,-	6	SA	HVT,MGT
1-1	DE60-10082I	SCREW-A	-,-,-,-,2S-4X10,FEFZY,-,-,-,-	18	SA	C/BACK + B/PLATE,C/BACK + M/PLATE,C/BACK + P/OUTER,C/BACK + V/T MOTOR,C/UPPER + BKT MGT,C/UPPER + BK
1-1	DE92-90508A	ASSY-HOLDER NUT	OTR6,-,-,-,-,-	2	SA	PANEL OUTER
1-2	DE60-10111A	SCREW-LAG	-,-,-,-,MSWR,W1/4X50,-,-,-,-	1	SNA	-
1-2	DE60-20022A	BOLT-TOGGLE	MSWR,W3/16X75,-,-,-,-,-,-,-	2	SNA	-
1-2	DE60-20066A	BOLT-FLAT	UNF1/4,L110,MSWR10,-,-,OTR6,-	2	SNA	-
1-2	DE60-30022A	NUT-TOGGLE	SBC1,ZPC2,WHT,-,-,-,-,-,-	2	SNA	-
1-2	6002-000630	SCREW-TAPPING	PH,+,2S,M3,L8,ZPC(YEL),SWR	4	SNA	ASSY-PCB
1-2	DE60-10062A	SCREW-TAP TH	-,-,FEFZB,-,TH,M4,-,L12,-,-	2	SNA	HANDLE
1-2	6002-001004	SCREW-TAPPING	TH,+,2,M4,L30,ZPC(YEL),SWR	2	SA	-
1-2	DE60-10045A	SCREW-TAP PH	-,-,FEFZY,-,PH,M3,-,L6,-,-	2	SA	-
1-2	6006-001170	SCREW-ASSY TAPP	WS,TH,+,M4,L10,ZPC(YEL)	1	SA	ASSY DIODE
1-2	DE60-10067A	SCREW-TAP TH	-,-,FEFZB,2-SLOT,TH,M4,-,L8	1	SA	-

6-1 PCB Diagrams

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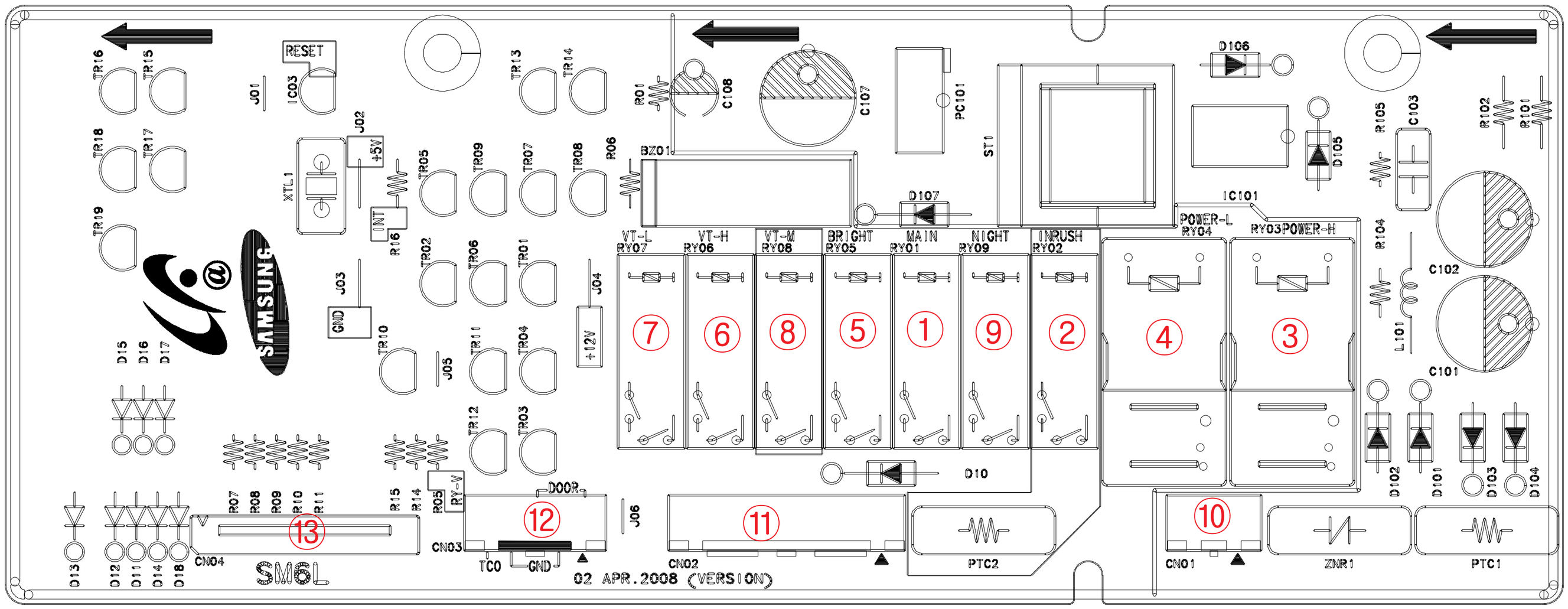
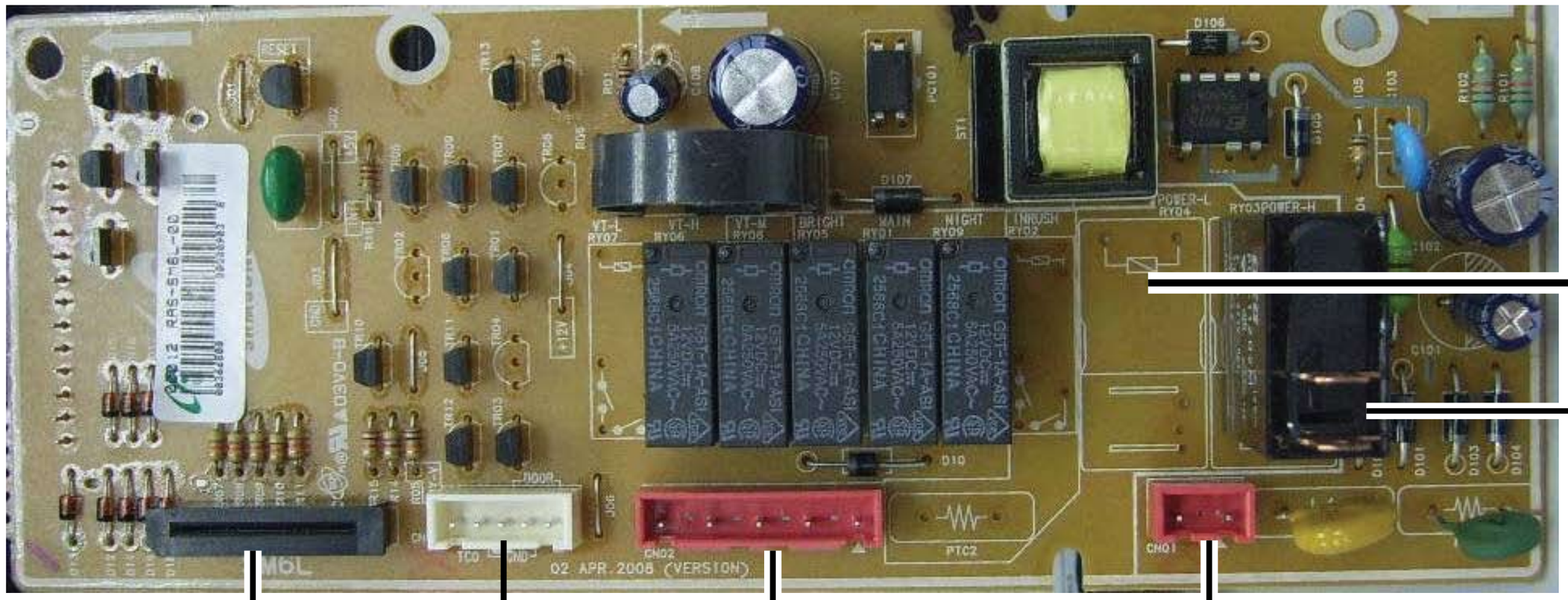


No.	Parts Number	Part Name	Function and Rule
1	RY01	Main Relay	Fan, Lamp, T/T Control
2	RY02	Inrush Relay	Inrush Electric Current Decrease
3	RY03	Power High Relay	MW Power Control(High Power)
4	RY04	Power Low Relay	MW Power Control(Low Power)
5	RY05	Bright Relay	Turn on High Light
6	RY06	Vent High Relay	Turn on High Ventilation
7	RY07	Vent Low Relay	Turn on Low Ventilation
8	RY08	Vent Mid Relay	Turn on Mid Ventilation
9	RY09	Night Relay	Turn on Low Light
10	CN01	Inrush Connector	A Terminal for Inrush Circuit
11	CN02	Power & Relay Connector	A Terminal for Connecting with Power supply & Relay Contact(Load Control)
12	CN03	Door switch Sensing Connector	A Terminal for Connecting with Door Switch
13	CN04	Membrane switch Connector	A Terminal for Connecting with Membrane Switch

6-2 PCB Diagrams

(This Document can not be used without Samsung's authorization)



RY04
1) POWER RELAY CONTACT1(HVT POWER1)
AC POWER NEUTAL (AC98V ~ 144V)
2) POWER RELAY CONTACT2(HVT POWER3)

RY03
1) POWER RELAY CONTACT1(HVT POWER1)
AC POWER NEUTAL (AC98V ~ 144V)
2) POWER RELAY CONTACT2(HVT POWER2)

CN03
1) DOOR SWITCH1 (RY_12V)
2) GND
3) DOOR SWITCH1 (12V)
4) GND

CN04
1) KEY OUTPUT1
2) KEY OUTPUT2
3) KEY OUTPUT3
4) KEY OUTPUT4
5) KEY OUTPUT5
6) KEY OUTPUT6
7) KEY OUTPUT7
8) KEY OUTPUT8
9) KEY INPUT1
10) KEY INPUT2
11) KEY INPUT3
12) KEY INPUT4
13) KEY INPUT5
14) ENCODER COMMON (ENCODER S/W MODEL)

CN02
1) MAIN RELAY
2) NO PIN
3) BRIGHT / NIGHT RELAY
4) NO PIN
5) VENT LOW RELAY
6) NO PIN
7) VENT HIGH RELAY
8) NO PIN
9) VENT MID RELAY

CN01
1) POWER (LIVE)
2) NO PIN
3) INRUSH CIRCUIT (MODEL OPTION)

7-1 Wiring Diagrams

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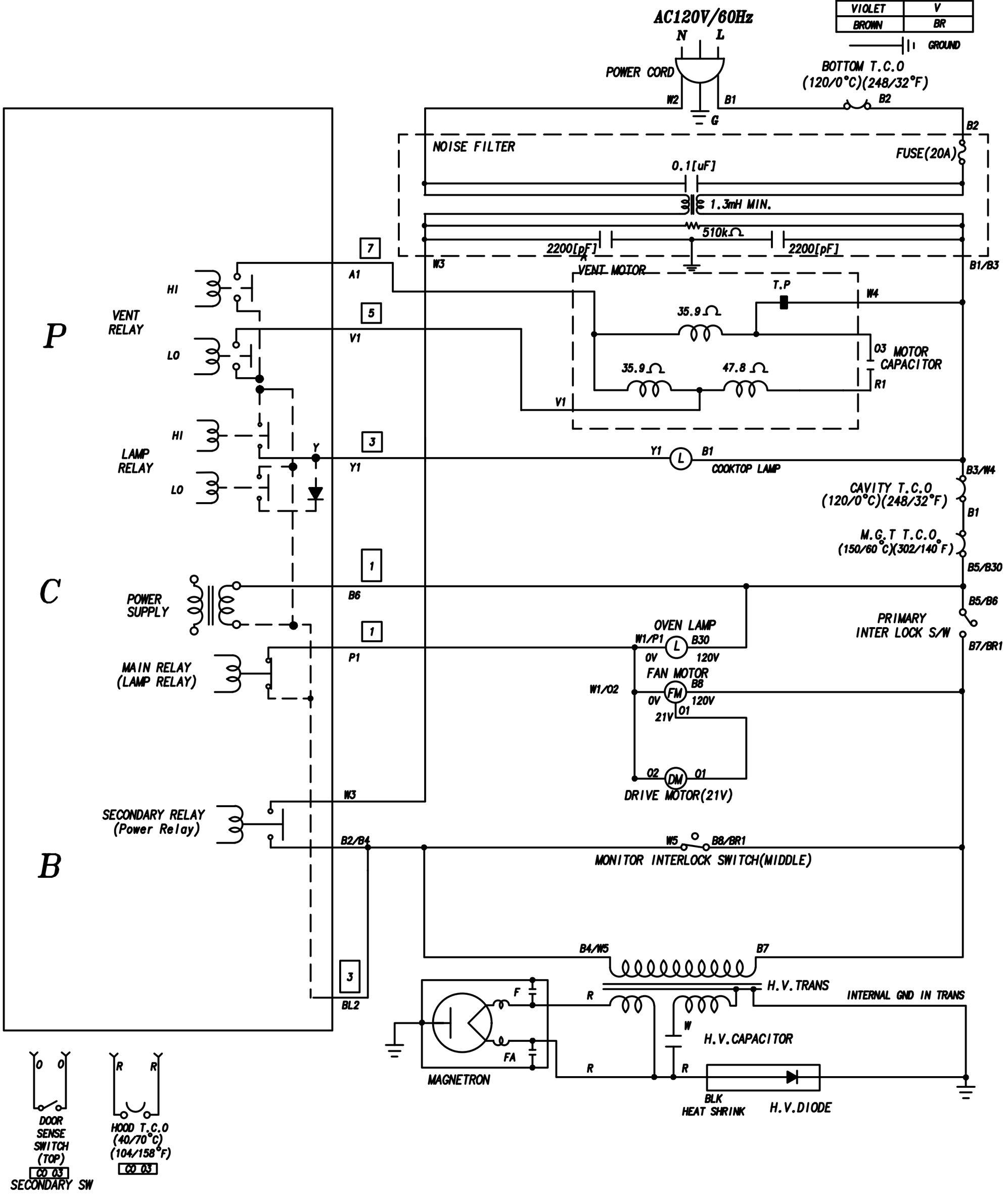
SCHEMATIC DIAGRAM

WARNING

POWER MUST BE DISCONNECTED

BEFORE SERVICING THIS APPLIANCE

COLOR	SYMBOL
GRAY	GR
WHITE	W
BLACK	B
RED	R
BLUE	BL
ORANGE	O
YELLOW	Y
GREEN	G
PINK	P
AZURE	A
VIOLET	V
BROWN	BR



7-1 Wiring Diagrams

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WIRING DIAGRAM

WARNING

POWER MUST BE DISCONNECTED

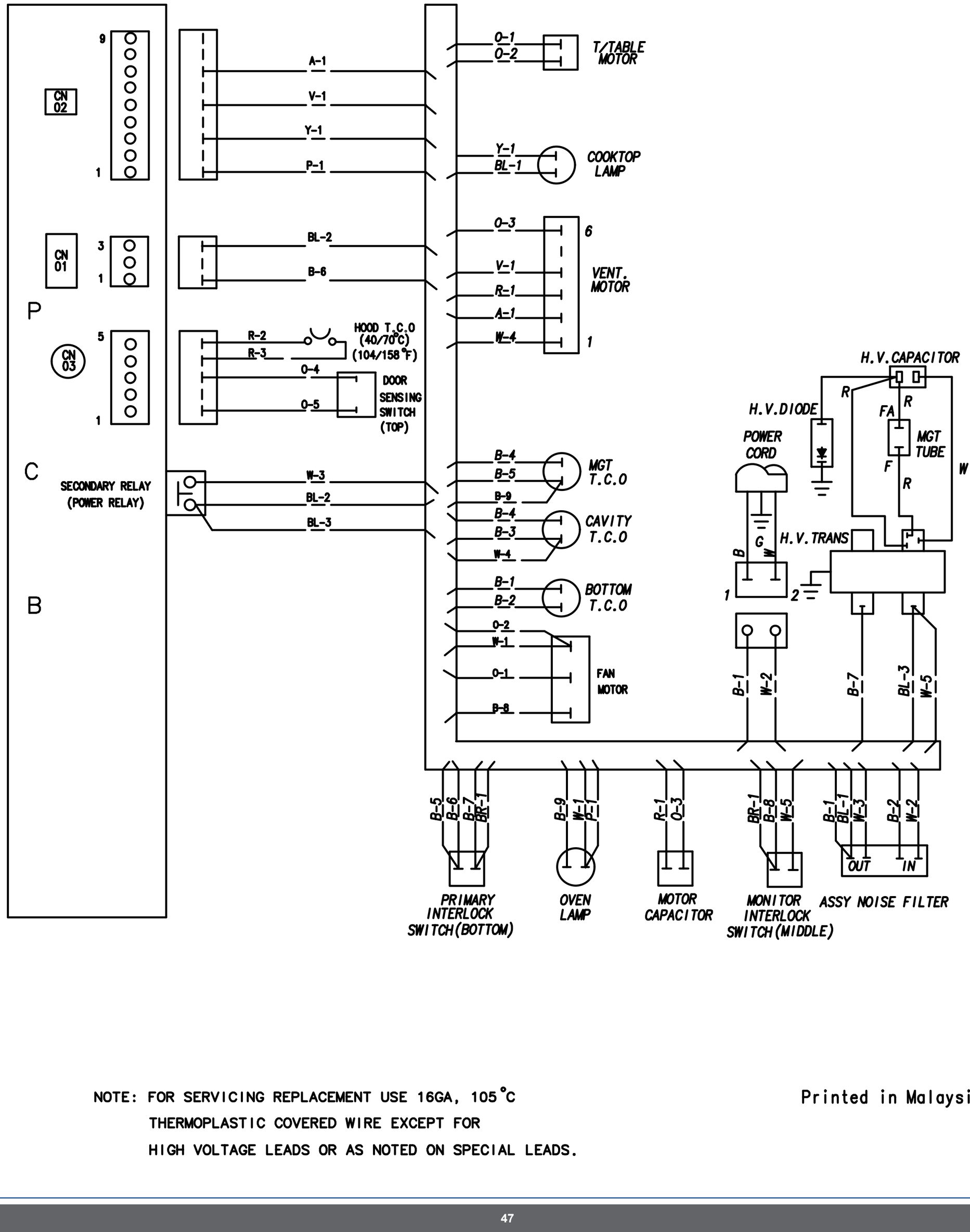
BEFORE SERVICING THIS APPLIANCE

COLOR	SYMBOL
GRAY	GR
WHITE	W
BLACK	B
RED	R
BLUE	BL
ORANGE	O
YELLOW	Y
GREEN	G
PINK	P
AZURE	A
VIOLET	V
BROWN	BR

GROUND

HARNESS LEADS

PARTS LEADS



NOTE: FOR SERVICING REPLACEMENT USE 16GA, 105°C
THERMOPLASTIC COVERED WIRE EXCEPT FOR
HIGH VOLTAGE LEADS OR AS NOTED ON SPECIAL LEADS.

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8-1 Schematic Diagrams

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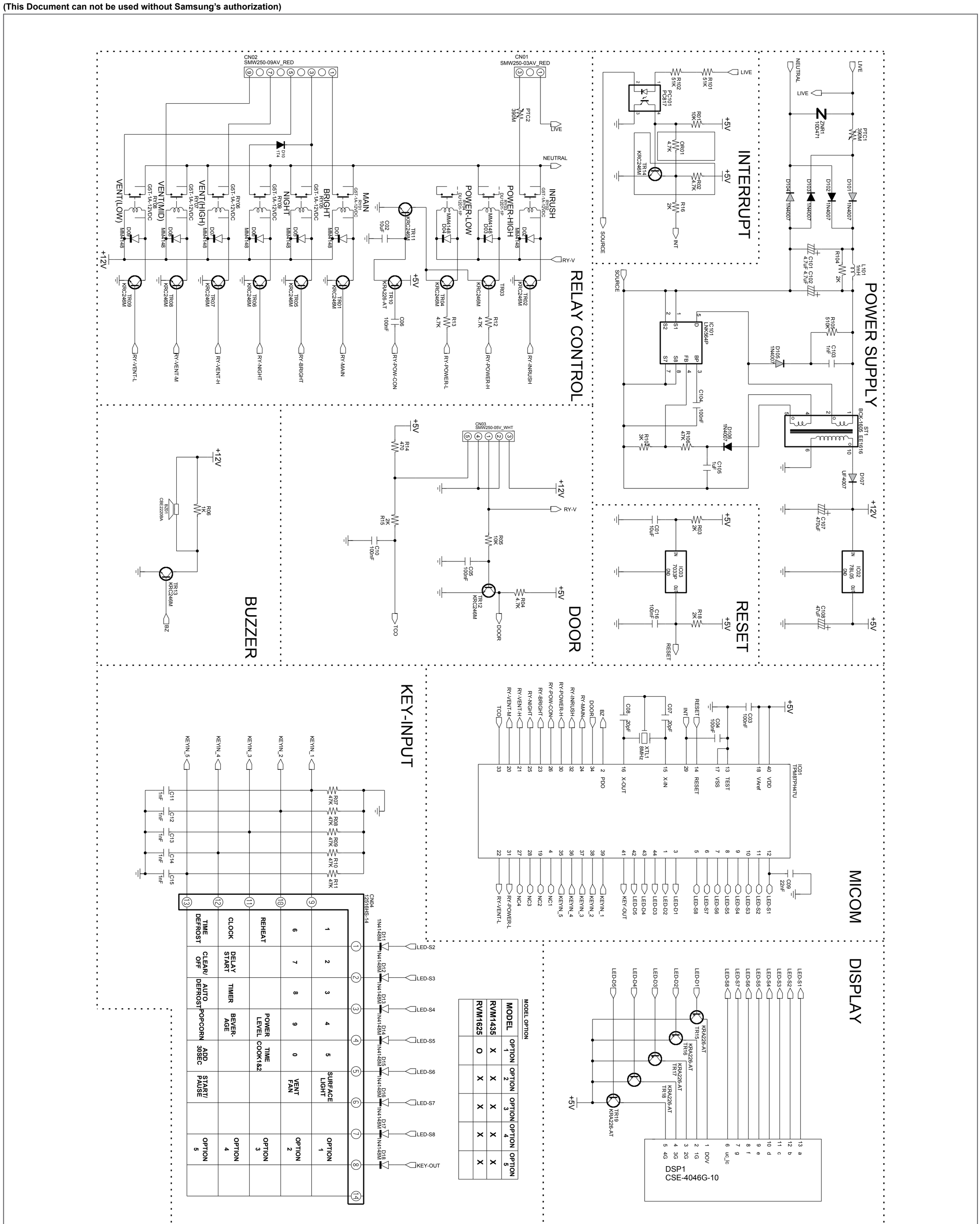

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